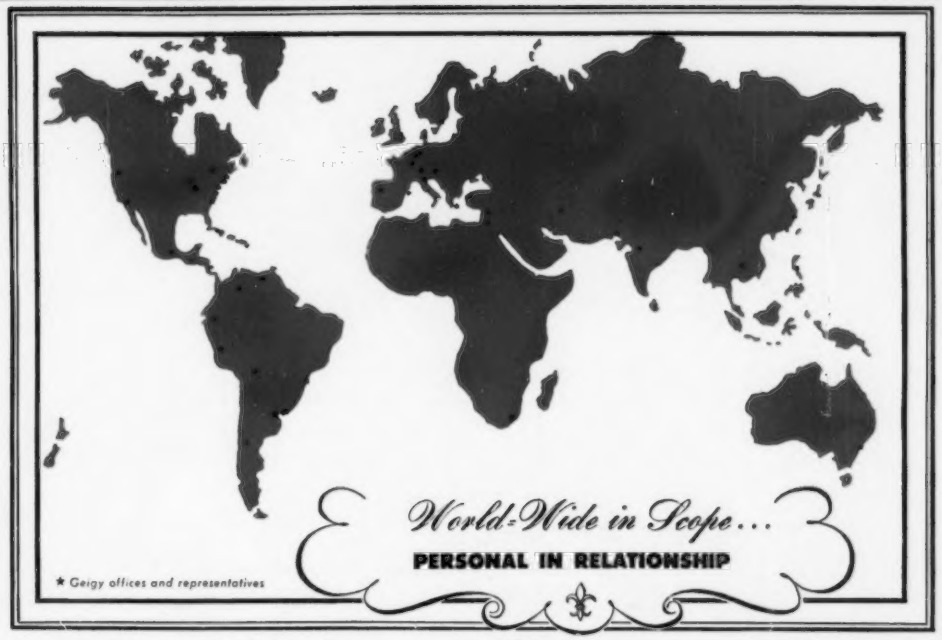
• All About Conveyors • Lowering Finishing Room Costs • Controlling Dissolving Tank Explosions

PAPER TRADE JOURNAL

July 23, 1956



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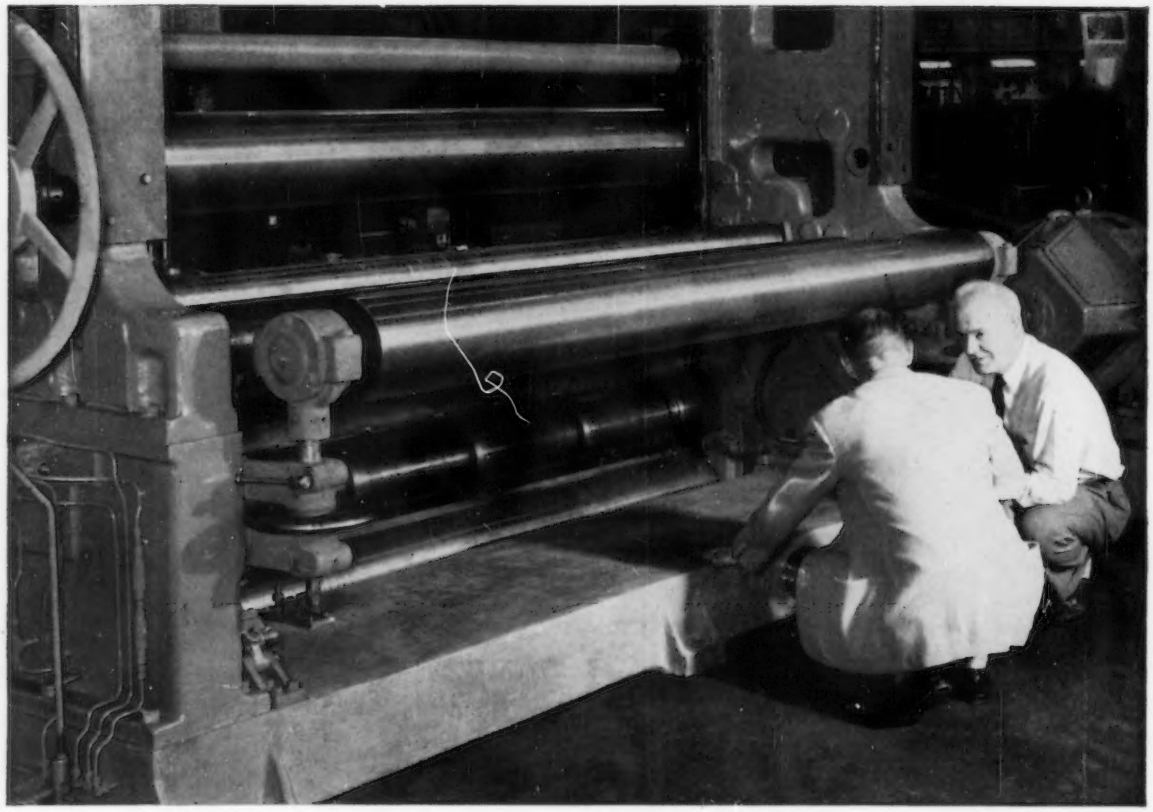

Why **Langston Slitters & Winders** hold steady with a 3-ton roll whirling at full speed

V-Belt Drives to the Rider Roll and Winding Drums. Far more efficient than flat belts for a given cross-section size. Belts need no lubrication, give smooth drive, run quietly.

The massive bedplate and side frames on this Langston Model DA are important reasons why Langston Slitters & Winders work so well and last so long. Every Langston machine has a bedplate and side frames which, like this one, are more than husky enough to hold the machine steady under full load.

This extra sturdiness makes Langston machines easier to align, and insures that they will remain steady through a long life of hard use. With the weights these machines carry, it doesn't pay to risk unsteadiness—even at *moderate* speeds. If you plan to operate your winders at *high* speeds, you need all the sturdiness Langston construction gives you.

Clean-cutting Langston Slitters & Winders use shear-cut slitters throughout the line—standard equipment without special order or extra cost. V-belt drives to the rider roll and between winding drums with variable pitch sheave permit easy adjustment of speed to suit grade of paper, or roll density required.

Langston Slitters & Winders are available in four standard models, in sizes from 40 to 196 inches and speeds to meet your specifications. These machines are now being produced at an accelerated rate, but the demand is exceptional. Prevent disappointment by planning ahead and placing your order early. For full information, write Samuel M. Langston Co., Camden 4, N.J.

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News about

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Hycar latices are used in the manufacture of special purpose papers to achieve a wide variety of desirable characteristics. Applied by coating, saturation or beater addition, Hycar provides greater tensile strength, greater elongation, better wet and dry bursting strength and superior oil, solvent, water and tear resistance. That's why so many papermakers turn to Hycar to improve present products or to help them create new products. For information on how you can use Hycar to your advantage, write Dept. EO-8, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

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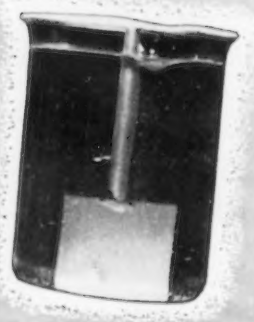
Extremely difficult coagulation conditions provide especially economical applications for Nalco 600. It can be used alone or in conjunction with other coagulants. A very low dosage of Nalco 600 usually permits as much as 50% reduction in dosage of alum, activated silica, iron sulfate or clay type treatments . . . and results in a cleaner, clearer supernatant liquid.



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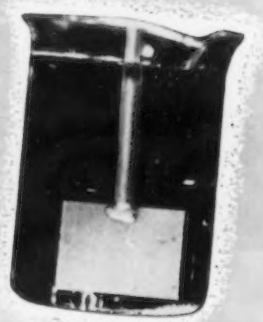
Nalco 600 was invented in the Nalco Laboratories, and is being manufactured *only* by Nalco. For complete data on Nalco 600, and expert technical assistance to solve your clarification and coagulation problems, call Nalco now.



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REMEMBER THESE DATES

SEPT. 27-28: First Paper Deinking Conference, Harris Hotel, Kalamazoo, Mich.

OCT. 8-11: Eleventh Engineering Conference, Sheraton-Plaza Hotel, Boston, Mass.

OCT. 17-18: Corrugated Containers Conference, Hotel Statler, St. Louis, Mo.

OCT. 22-25: Protective Packaging and Materials Handling Exposition, Kiel Auditorium, St. Louis, Mo.

PAPER TRADE JOURNAL

Published Weekly Since 1872

July 23, 1956, *Vol. 140, No. 30*

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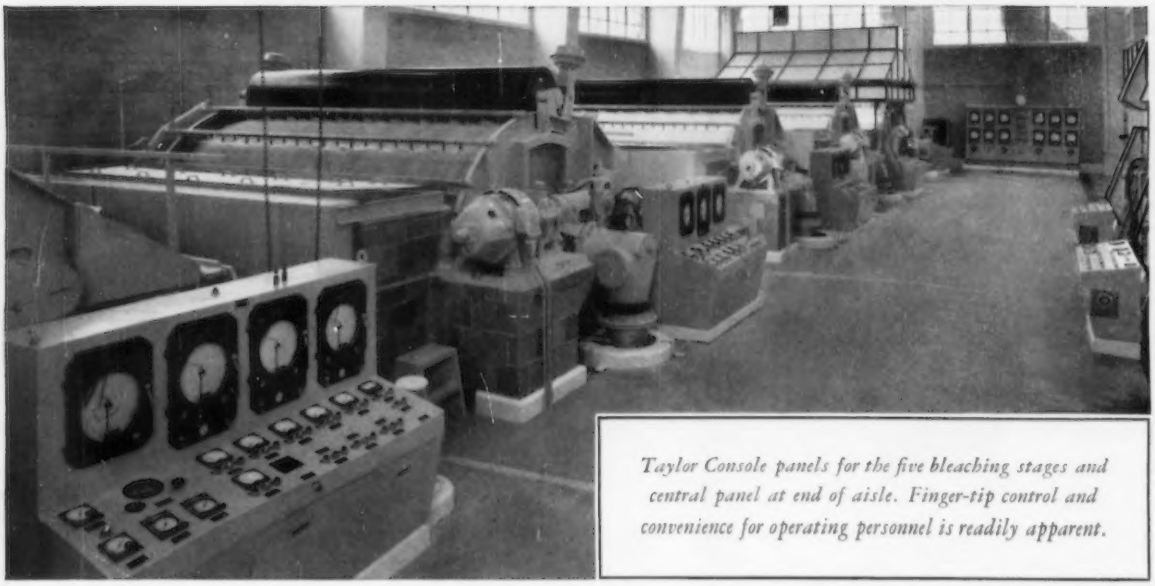
Convenience is the keynote

in bleach plant automation at East Texas Pulp & Paper Co.



Taylor Console panels for the five bleaching stages and central panel at end of aisle. Finger-tip control and convenience for operating personnel is readily apparent.

IT is believed that the complicated process of bleaching Kraft pulp has been made as foolproof as is automatically possible at the East Texas Pulp and Paper Company's new 300-ton mill at Evadale, Texas. Taylor instrumentation provides the following controls on the chlorine and caustic stages: (instrumentation for the other 3 stages is similar).

1. Consistency Control. Consistency of stock pumped from the Unbleached Deckered Stock Chest is maintained at 3½%. The pressure drop method is used, measuring friction loss of stock flowing in the pipe by means of a differential pressure transmitter. A TRI-ACT* Controller gives optimum control and consistency is recorded on a conventional circular chart.

2. Control of Stock Flow to Chlorine Tower. This is measured by a venturi tube and DP transmitter. The receiver-controller operates a large Saunders type diaphragm valve. Back flow of stock when the pump is shut down is prevented by a solenoid air valve in the controller output which closes the stock valve.

3. Fresh and White Water Dilution Control. Dilution of stock in the launder is controlled both manually from the console panel and automatically by flow control systems on white water filtrate from Seal Tanks. BI-ACT* controllers and TRANSET* indicating receivers are used here.

4. Control of Temperature of Stock Entering Caustic Tower. Temperature is held to within ± 1° F., thanks to the cigarette size bulb and rapid response of the TRANSAIRE* Temperature transmitter. Signal is sent to a receiver controller which actuates the mixture steam valve.

On the Main Bleach Plant panel at the end of the room some of the chemical preparation instruments are mounted. These include chlorine pressure and temperature, caustic concentration and level and hot water system instrumentation.

Taylor automatic control systems are used extensively on all phases of processing at East Texas. A visit to this fine new mill will show better than thousands of words the quality of workmanship — and the results being achieved.

Bulletin 98266 describes the instrumentation at East Texas in detail. Write to Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada.

*Reg. U.S. Pat. Off.

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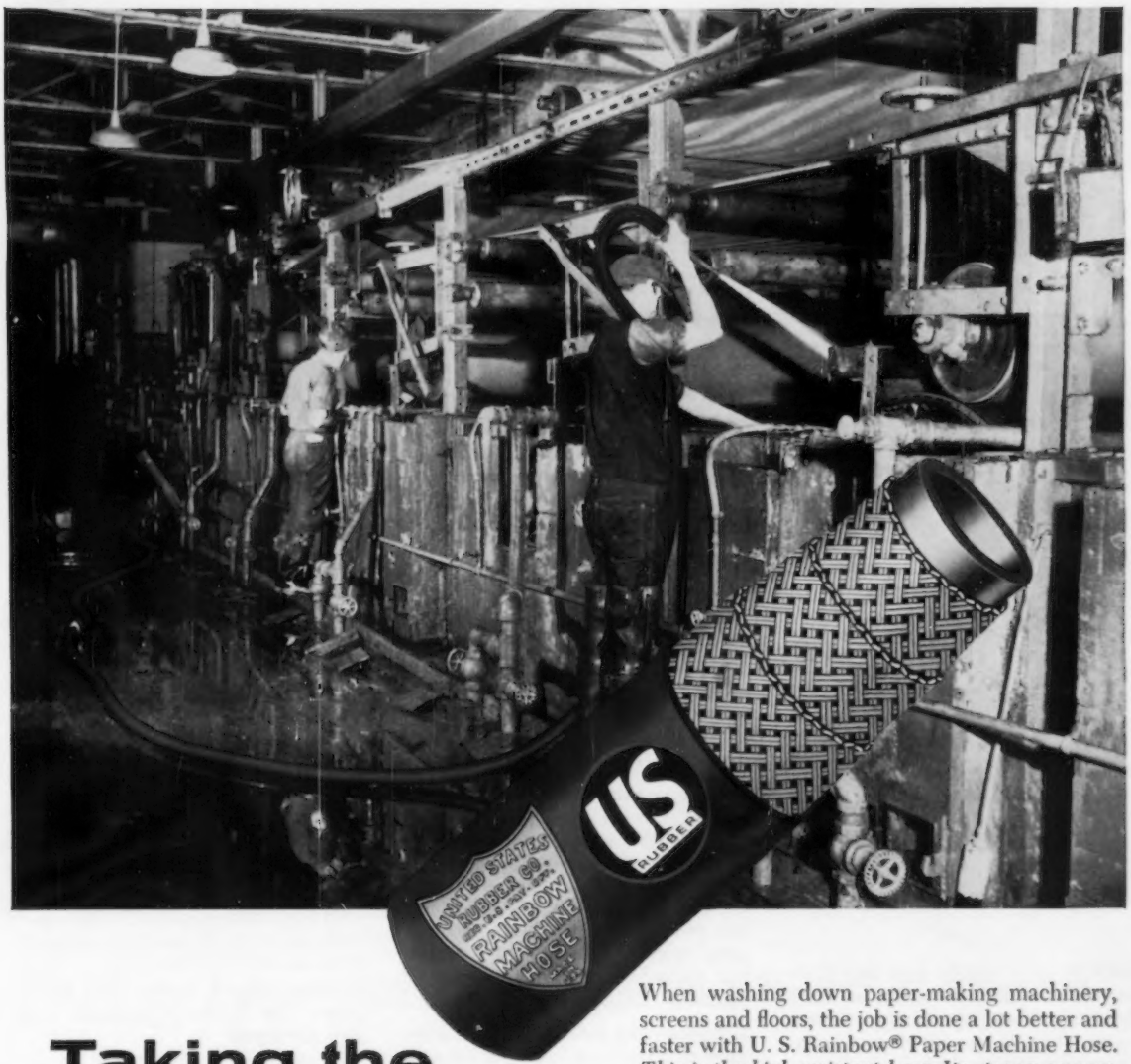

Taking the Kinks out of "Paper Work"

When washing down paper-making machinery, screens and floors, the job is done a lot better and faster with U. S. Rainbow® Paper Machine Hose. *This is the kink-resistant hose.* Its strong carcass, made of famous Ustex® cotton yarn, has the body to prevent kinking and collapsing from supply connections to the nozzle. Yet U. S. Rainbow is light and flexible. Its thick red-rubber cover withstands abrasion when dragged over rough, gritty floors or around machinery. Integrally built-in duck and rubber nozzle prevents damage to screens and other equipment.

This premium quality hose is available at any of the 28 "U. S." District Sales Offices, at selected distributors, or write U. S. Rubber, Mechanical Goods Div., Rockefeller Center, New York 20, N. Y.

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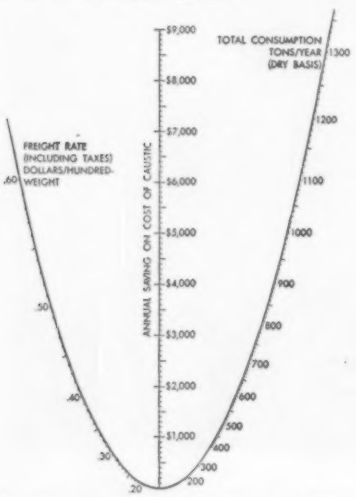
BRIEFS
for caustic soda buyers

50% or 73%?
Choosing a supplier
New producing point

50% to 73%—
some save, some don't

To estimate quickly whether you can save by switching from 50% to 73% liquid caustic soda, simply draw a line on this nomograph.



Start at your freight rate and draw to your annual consumption in tons, dry basis. Your approximate savings on freight will appear where you intersect the center line.

From this figure, subtract annual depreciation for dilution equipment. (We'll be glad to advise you on cost of this equipment.)

If you still show a saving, it would be wise to consider the big switch seriously.

For more facts on the economics of 50% and 73% caustic, check the coupon for a copy of our pocket-size *Caustic Soda Buyer's Guide.*

And for specific technical advice centered on *your* requirements, just phone or write the nearest Hooker sales office.

Choosing a supplier

Service is a large part of what you pay for when you buy caustic soda.

Here are some important "service" points to look for when you're considering a source of supply. (As a Hooker customer, you enjoy *all* of them.)

1. Supply security. How flexible are your supply lines? For instance, a supplier with plants and stock points on deep water may be able to offer you a choice of rail or water delivery. This can assure you steady supply in case of rail service interruption.

2. Realistic contracting. Your agreements with your supplier should realistically reflect your expected needs *and* the supplier's ability to consistently deliver the tonnage you need. Best yardstick for measuring this ability is a supplier's performance record. Hooker, for example, has an unbroken 50-year record of fulfilling contract commitments.

3. Engineering help. A supplier's engineering staff can help you set up a new caustic handling system—or revamp an old one—with advice, and with actual design assistance.

4. Safety programs. The men in your plant who handle caustic soda can benefit from safety suggestions offered by your supplier. You should have on tap the latest in safety equipment, plus up-to-date information on the safe handling of caustic soda.

We'd be happy to enlarge on these points, with your caustic requirements in mind. A phone call or note to the nearest Hooker sales office will bring you the specifics.

New source

Put a pin just north of Vancouver, B.C., on your map of caustic soda supply points.

Here in the city of North Vancouver, early in 1957, a new $11 million chlor-alkali plant will go on stream. At the plant's masthead will fly the colors of Hooker Chemicals, Ltd. The plant will be built and operated by Canadians, for industry in Canada.

The new Hooker plant will be Western Canada's first domestic source of caustic soda and chlorine. It will shorten supply lines, provide small but real freight savings, eliminate the need to pay duties on caustic and chlorine, and make for faster service.

If your company is already operating plants in British Columbia, or plans to build in this great, growing territory, this is a good time to discover how Hooker Chemicals, Ltd., can serve you.

Check items you'd like to receive:

☐ *Caustic Soda Buyer's Guide.* Lists advantages of 50% and 73% solutions; comparative costs; capacities of tank cars and other containers; useful shipping information.

☐ Technical data on caustic soda.

Need information on these other Hooker products used in the pulp and paper industry? Check here for technical data sheets:

☐ Chlorine, liquid
☐ Muriatic Acid
☐ Sodium Sulfide
☐ Sodium Sulfhydrate

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you'll do better with **BORDEN'S FF-30 CASEIN**

Untidy lipstick makes a poor impression. Just as paper with poor quality coating fails to land the important initial order.

That's why you'll do well to insure top quality in your coatings by using new FF-30 Casein developed by Borden's paper specialists. FF-30 is especially designed to produce coatings practically free from entrapped air. It prevents formation of "fish eyes". . . eliminates pinholes in clay coatings on paper and paperboard . . . makes true "high fidelity" printing possible.

You'll enjoy important production advantages with Borden's FF-30, too. It responds well to clay coating additives. It can be dispersed in water or added directly to the clay or pigment slip without forming lumps. It has excellent leveling and flow properties . . . is particularly free from dirt and bacteria. In addition, the mix containing Borden's FF-30 has less than the usual tendency to foam during mechanical agitation . . . and any foam which may form is easily controlled with a minimum of anti-foam agent.

For any casein requirements, you can depend on Borden. Just name the coating problem and Borden's technical experts will put 50 years of experience into the answer. And remember—you'll get absolute uniform grading in every batch of Borden's Casein or Caseinate to help assure uniform quality in your coatings. Contact us without obligation, and in strictest confidence. The Borden Company, Chemical Division, Dept. PTJ-76, 350 Madison Avenue, New York 17, N. Y.

PAPER CHEMICALS

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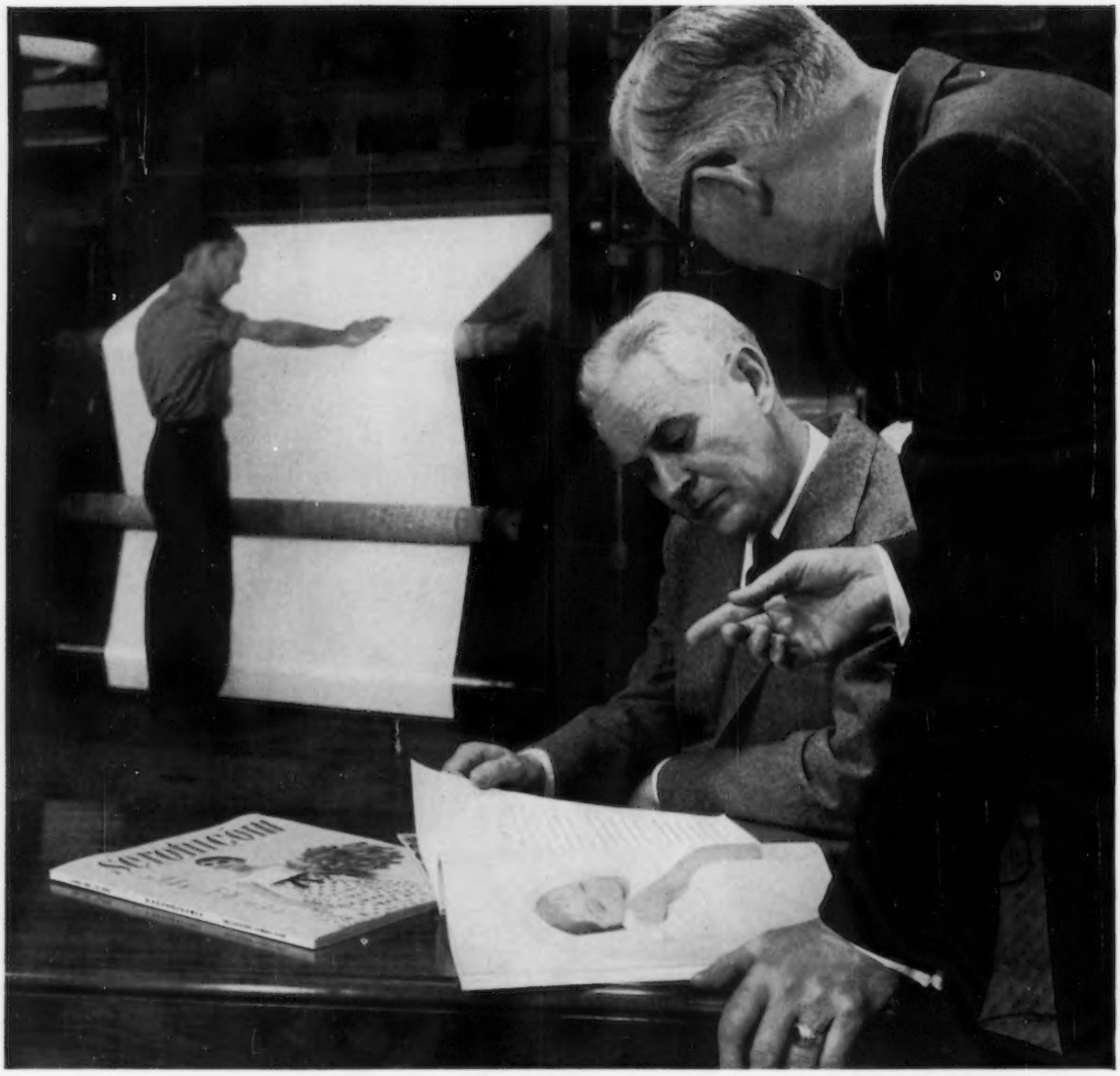
THE *Borden* COMPANY
CHEMICAL DIVISION



One of the many ways in which "Virginia" Zinc Hydro is used to produce a better finished product is in making paper stocks for popular magazines whiter and brighter.

Whiter, brighter finished product—at less cost with

"VIRGINIA" ZINC HYDRO

Paper mills using "Virginia's" low-cost zinc hydro *average* a 10-point brightness gain in upgrading groundwood pulp—some mills achieve as high as 13 points. Putting it another way—that's improving the quality of groundwood pulp for as little as 60c per brightness-point per ton!

"Virginia's" is the only high-test ZnS_2O_4 commercially available. Our technical experts are at your service to meet with you in your plant to see if "Virginia" Zinc Hydro can reduce your processing costs, increase your profits. When you call us in, you call in more than 35 years of service to industry.

Phone, write or wire. Industrial Division, VIRGINIA SMELTING COMPANY, Dept. 258, West Norfolk, Va.

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TRENDS

JULY 23, 1956

Pulp Survey Highlights Record Consumption

A woodpulp consumption survey—just off the press, produced by the Association of Pulp Consumers and to be released later this week, shows that the U.S. industry has used more woodpulp during the first five months of this year than any similar five month period since the end of World War II. The May consumption figures were at the top mark too. Total consumption for that month hit 265,794 tons, highest May level in 10 years and 11.2 per cent above May, 1955. The five month consumption total reached 1,285,011 tons, or 10.3 per cent over the first five months of last year. Consumption figures do not include dissolving tonnage.

Large Hardwood Mill Rumored For Mass.

A rumor that Western Massachusetts may be chosen as the site of a large hardwood pulping operation in the near future is of particular interest to us because of our outspoken editorial interest in the subject, which dates back two or three years. The rumor, which was related as a confidence to us a week ago and which has subsequently come out in the open, holds that Maine interests are now actively seeking three such sites and are close to reaching a decision on Western Mass. State Conservation Commissioner Arthur T. Lyman admitted Boston banking interests have reported the possibility to him.

Paperboard Mills Boost Output

Paperboard production, despite mill shutdowns, reached a rate nearly 15 per cent above a year ago during the first week in July. New orders for board amounted to 273,007 tons at this time, a substantial rise of some 21 per cent from similar 1955 totals. The new business rise at the beginning of this month also topped all similar marks in each of the past four years. The increased tempo of paperboard output, at a time when most mills usually shut down, is looked upon by several industry spokesmen as a very "favorable" sign. No indication was given as to what effect a prolonged steel strike might have on this upward trend.

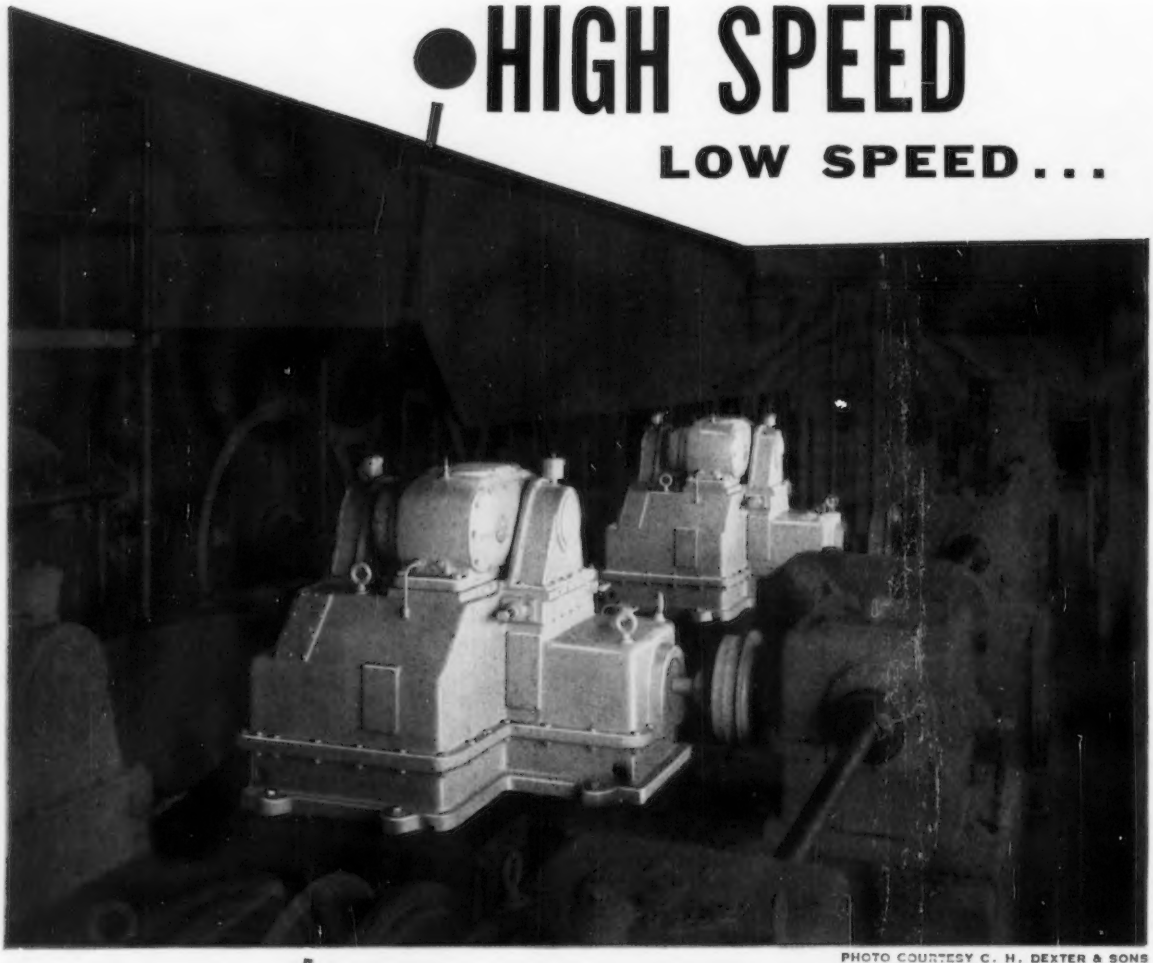
Bounce-Back Held For Rayons

The recent disintegration of rayon textile demand has caused several large producers to lay off huge blocks of their work force and cut back the number of weekly work hours. F. M. Acker, du Pont's rayon textile mill manager stated during the week, "We've hit the bottom of the present decline, but as yet there are no plans for the resumption of full production." Alternate and new uses for rayon pulps are expected to give the commodity a big sales push this fall. One such field is that of rugs. Introduction of woven rayon backing for carpets has already proved to be highly successful.

Steel Strike Sparks Scare Buying

In the nation as a whole, some evidences of scare buying have appeared. Chief factor affecting these purchases is the steel strike now going into its 25th day. Settlement of this major labor conflict is said to be at least 2 to 3 weeks away—at best. Shortages of consumer goods are not very likely, unless the strike carries on for a much longer period. Pre-strike stocks were huge.

HIGH SPEED
LOW SPEED...



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The Rice Barton Differential Drive

provides precise and instantaneous draw control through the complete range of papermaking speeds.

When a section is shut down, its drive unit is idle, since the unit is separated from the line shaft by its clutch.

This unique feature, plus continuous indication of available draw, and automatic return to pre-set draw after slack take-up makes the Rice Barton Differential Drive the perfect drive for the papermaker.

RICE BARTON

RICE BARTON CORPORATION

Worcester, Massachusetts

Paper Machine Builders Since 1837

West Coast Distributor: **Ray Smythe . .** 501 Park Building • Portland, Oregon

A.N.D. Co. to Build Ontario Mill

Anglo-Newfoundland Development Co. are taking up the option which they have with the Provincial Government for timber limits in Northwestern Ontario near Sioux Lookout. Plans call for a $60 million mill to produce 500 tons of newsprint and 100 tons of bleached kraft market pulp per day. The agreement with the government calls for the company to begin construction within a year.

Anglo-Newfoundland Development Co. has a large newsprint plant at Grand Falls, Nfld., a subsidiary, Gaspesia Sulphite Co., and is closely affiliated with Anglo Canadian Pulp and Paper Mills

Sioux Lookout is approximately 200 miles north of Port Arthur.

New Mill Hinted Near Bend, Ore.

Plans to utilize a long-abandoned irrigation reservoir for disposal of pulp and paper mill wastes near Bend, Ore., disclosed that this central Oregon area was under investigation for establishment of a new pulp (and paper?) mill.

Lewis A Stanley, state engineer, reported in Salem, Ore., that the consulting engineering firm of E. A. Messer & Associates, Portland, had inquired about leasing the state-owned Tumalo Reservoir area and stated the purpose involved the paper mill proposal.

Sources in Bend and state agency officials reported the company was Brooks Scanlon Lumber Co.

The mill presumably would utilize chipped pine-waste material and perhaps sub alpine species or others in a 200-ton per day capacity.

Messer recently tapped a heavy flow of water at 600 foot level, deeper than most large flow wells in the area, as part of its investigations. The Tumalo Reservoir site is part of a 1914 development abandoned when the faulted basin failed to hold water. It drained off into subterranean caverns. A nine mile pipeline would be needed to link the mill to the basin.

Disposal in the caverns would be unique, but Mr. Stanley said the state has no positive knowledge that such disposal would not pollute water supplies of the area. He said, however, both Bend and Redmond dump their sewage into caverns in the volcanic areas and there never has been evidence of pollution of the waters used in the area.

Gaylord Installs Continuous Pulping

The first commercial, continuous digester system in a southern mill for producing kraft and hardwood pulps is being installed by the Gaylord Container Corp. at its pulp and board mill in Bogalusa, La.

The Pandia, Inc., division of Black-Clawson Co. is furnishing a continuous digester unit having a large 15 inch diameter screw feeder, two 42 inch diameter digester tubes, and a Pandia discharger. The top tube of the unit will be provided with the necessary equipment for re-circulating the cooking liquor, so as to take advantage of the latest techniques in pulping.

An unusual feature of the installation will be the experimental work to be conducted during the early months after it initially goes into operation. While the new system is being installed first to produce neutral sulphite semi-chemical pulp from hardwood for corrugating board, Gaylord plans to conduct experimental runs with this equipment to produce various grades and types of kraft pulps.

The unit is being constructed so that it can be expanded into a four-tube continuous digester operation at a later date, with plans ultimately for producing approximately 300 tons of pulp daily.

To Become Union Bag-Camp Paper Corp.

Union Bag & Paper Corp. and Camp Manufacturing Co., Inc. on July 12 merged into a new company — Union Bag-Camp Paper Corp., following approval of the merger proposal by stockholders of the two companies.

Principal officers of Union Bag-Camp Paper Corp. are: Alexander Calder, chairman of the board and chief executive officer; J. L. Camp, Jr., vice chairman of the board; Alexander Calder, Jr., president; Hugh D. Camp, executive vice president in charge of Camp Division and chairman of planning committee; Thomas T. Dunn, executive vice president, manufacturing; Malcolm S. Black, secretary and treasurer.

West Va. Will Modernize No. 5 Machine at Luke

Approval for modernizing Number 5 machine at the Luke Plant of the West Virginia Pulp and Paper Company has been granted by the board of directors of the company.

The major work to be done includes the installation of a head box, enlarging the fourdrinier, adding dryers, installing a new coater, and generally rehabilitating the machine parts.

Modernization of the machine is estimated to cost $630,000. Other authorizations for the Luke mill total $90,000 part of which will go for a used pulp press-cutter-layboy.

Southland to Add Fourth Machine

A fourth newsprint machine will be added at the Southland Paper Mills, Inc., in Lufkin, Texas. Total newsprint production is expected to increase to 200,000 tons annually when the mill's third machine is put in production this month.

Celotex Awards Contracts For L'Anse Construction

Giffels & Vallet of Detroit have been retained as designers and engineers of the previously announced fiberboard plant to be built by Celotex Corp. at L'Anse, Mich. The Turner Construction Co. is the general contractor. The plant is one of three to be built by Celotex by the end of 1957.

Richmond Converter Buys James River Pulp

Cauthorne Paper Co. of Richmond, Va. has purchased enough common stock of the James River Pulp Corp. of Columbia, Va. to give Cauthorne the controlling interest. The stock purchased represented new issue and the additional capital will be used for improvement and expansion of the mill.

Since the affiliation with the Cauthorne Paper Co., paper wholesalers and converters, work at James River is progressing on expansion of facilities to produce approximately 20-25 more tons of market groundwood a day and to complete installation of a 600 ton hydraulic pulp press. Plans for further expansion are under consideration.

Robert T. Reid remains as president and treasurer, with Ross V. Cauthorne, Thomas G. Cauthorne, and Ford H. Doepker as vice-presidents, and Robert A. Brock, Jr. as secretary. Members of the board of directors include the above, and, in addition, Ross A. Cauthorne as chairman of the board and Chester W. Armentrout.

Taylor Group Buys into H.S.P.M.

E. P. Taylor, Canadian financier, has acquired an important interest (16%) in Howard Smith Paper Mills' stock. H.S.P.M. is one of Canada's largest pulp and paper companies and largest Canadian producer of fine papers with nine mills.

Actual acquisition of the stock was by Dominion Tar and Chemical Co., which is controlled by Argus Corp., a holding company controlled by E. P. Taylor.

Mr. Taylor has in the post war period become an extremely important factor in Canadian industry and finance. He has acquired control of a large number of widely diversified Canadian companies. Other pulp and paper interests include St. Lawrence Corp. and British Columbia Forest Products Ltd. (now building a pulp mill in British Columbia).

Federal-Morris Merger Approved

Confirmation of the pending merger of Federal Paper Board Co. and Morris Paper Mills was made last week by the directors of both companies. Under the terms, Morris, whose board mill is in Morris, Ill., will be consolidated with Federal as an operating division.

Special meetings of the stockholders of both companies are being called for August 9 to vote on the merger, scheduled to be effective August 11. As a result of this union, Federal can be expected to climb into third place as a producer of folding boxes, behind Container Corp. and Robert Gair.

$32,500 ESPRA Grant to N.Y.S. College of Forestry

The State University of New York College of Forestry in Syracuse will receive a total of $32,500 from Empire State Paper Research Associates, Inc. for research during the coming year, according to Dr. Edwin C. Jahn, associate dean for physical sciences and research at the Forestry College.

ESPRA is a non-profit incorporated organization, made up of a group of 23 pulp and paper companies which are located in the United States, Canada and Europe. These firms have joined together to support research on the pulping of hardwoods at the College of Forestry.

Tennessee Paper Mills Erects New Offices

Tennessee Paper Mills in Chattanooga has secured a city permit for $40,000 in construction at its board mill site. The construction will be an addition to the mill's office space.

Paper and Board Production

According to the American Paper and Pulp Association, the ratio of the United States production to mill capacity for the week ending July 7, 1956, was 64.1 percent, compared with 98.7 percent, revised, for the preceding week. The ratio was 60.4 percent for the corresponding week a year ago. Mills producing newsprint exclusively are not included.

The paper board production ratio for the week ending July 7, 1956, was 56 percent, compared with 97 percent for the preceding week and 55 percent for the corresponding week last year.

The sharp decline in the operating ratio is due to the 4th of July holiday and the customary mill shut-downs for repairs and vacations.

(Detailed statistics on page 50.)

Barrett Starts Operations At New Sunbury Mill

Barrett Division, Allied Chemical & Dye Corp. has announced that its new insulation board plant at Sunbury, Pa., has been substantially completed and that manufacturing operations have begun. Products manufactured at the new plant include roof insulation board, insulated sheathing, wallboard, acoustical tile and insulating tile. The base of all products will be wood fiber obtained from the hard wood reserves of the area.

The new plant will serve the Eastern portion of the United States. The insulation board products will be marketed through the sales organization which handles Barrett asphalt shingles, roll roofings, builtup roofings, gypsum board, and other building materials.

Marathon Sets Expansion Budget at $132 Million

Marathon Corp. plans to spend $132 million for development and expansion through 1959.

Of the total amount, approximately 50 million dollars is budgeted for the integrated contained pulp mill, paper mill and converting plant at Naheola, Ala., which is scheduled to begin operating by the end of 1958.

Making up the aditiodnal 82 million dollars will be the cost of replacing worn equipment, buying new equipment, modernization, equipment for the new food package plant at Newnan, Ga., construction of a new corporate office building at Neenah, Wis., and construction of new manufacturing facilities.

Crandon Changes Name Appoints Sales Manager

Crandon Paper Mills, Inc., has appointed O. K. "Ozzie" Krogfoss as sales manager for the company. He will supervise sales of paperboard throughout the United States.

For the past 3½ years Mr. Krogfoss has been a board salesman for the Union Bag and Paper Corp.

A change in the company's name from Crandon Enterprises, Inc., to Crandon Paper Mills, Inc. has also been announced. The change was made to make the name more descriptive of the firm's operations.

Crandon is presently remodeling and converting the former Hinde and Dauch paperboard mill in Fort Madison from straw to pulpwood for the production of semi-chemical corrugating medium. Operations are expected to begin late this summer.

Western Kraft Expansion Details

Western Kraft Corp.'s recently authorized expansion program will increase the mill's capacity from its designed capacity of 120 tons per day (kraft linerboard) to approximately 220 tons per day. The majority of the engineering work for the expansion program will be accomplished by the mill's own engineering staff, directed by Oury Hisey, vice-president of Western Kraft. Assisting Mr. Hisey will be Western Kraft's chief engineer, John Beaver, and the plant engineer, Keith Miller. The engineering department is well along in the planning of the mill expansion. Most of the major equipment required has been ordered. Site grading and excavation is scheduled for late summer.

To accomplish this first expansion, the pulp mill's capacity must be increased by the addition of another digester, a jordan, evaporators, a washer and decker, an additional recovery boiler, and other miscellaneous equipment such as storage tanks, pumps, screens, etc. The paper mill's capacity will be increased by the addition of more dryers to the present paper machine.

To Build Wastewood Chipping Plant

Canadian Collieries (Dunsmuir) Ltd., which recently acquired what is now known as its Flavelle Cedar Div., Port Moody, B. C., has authorized immediate construction of a $100,000 wastewood chipping plant which is expected to be ready for operation by September.

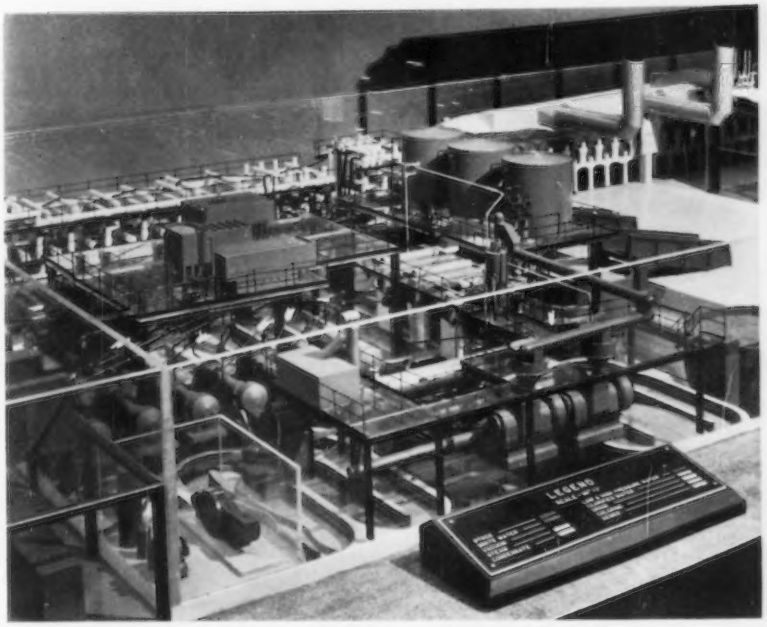
Some months ago the company purchased Flavelle and Timberland Lumber Co. at Port Moody.

Iran Seeks Gummed Paper And White Cardboard

The Iranian Tobacco Monopoly Institute in Teheran has invited bids for 1,100 bobbins of white and brown gummed paper tapes (bid deadline July 28th), and 425 tons of white cardboards on bobbins and in sheets (bid deadline July 29th). Specifications on these items may be obtained at the Iranian Embassy, 3005 Massachusetts Ave., N.W., Washington, D. C.

U. of Me. Gets American Viscose Grant

University of Maine Pulp and Paper Foundation has received a gift of $1,500 from American Viscose Corp., Philadelphia, Pa. This is the third gift of a similar amount which the concern has made to the Foundation.



Details of New Santa Clara Mill

Careful planning involved in Container Corp's Santa Clara boxboard mill is shown in the above photograph. This is a scale model with full detail of the new mill which will produce folding boxboard and liner board. It is scheduled to begin operations in July 1957.

Inaugurate Tree Improvement Program

The School of Forestry at North Carolina State College, Raleigh, N. C., has begun a five-year regional program in forest genetics aimed at improving the South's vast woodlands.

The project is known as the cooperative Forest Tree Improvement Program.

The unique region-wide study was launched with a $26,500 budget including $10,000 in agricultural Experiment Station funds and $16,500 invested by the eleven supporting pulp and paper firms. Additional companies are expected to take part in the venture.

In its first stages, the program will cover the states of North Carolina, South Carolina, Virginia, Georgia, and Tennessee and will be expanded to other areas in the Southeast as the work progresses.

Dr. Bruce J. Zobel, one of the nation's top geneticists, has been appointed to head the project. Dr. Zobel is resigning a position as silviculturist with the Texas Forest Service at Texas A & M College to accept the North Carolina State College assignment. He will be assisted by Robert L. McElwee, who has resigned as forest management specialist with the Gaylord Container Corp. at Bogalusa, La., to become liaison geneticist with the N. C. State project.

The two geneticists will direct a genetics project designed to determine, among other things, how to improve the tree quality, the rate of growth, the type of fiber which these trees will bear, and resistance to climatic conditions and diseases. The study will deal chiefly with loblolly pine and to a lesser extent with pond and short-leaf pine.

Pulp and paper companies, each of which has invested $1,500 to get the work started, are the Camp Manufacturing Co., Franklin, Va.; Gair Wood-

Look Mom! No Coat

Have you noticed that the last few issues of **Paper Trade** JOURNAL have been arriving without wrapper? This is another innovation which will prove of service to our readers. We expect increased readability (there's that word again) since some of our readers have complained that the fold that remained after removing the wrapper, sometimes made reading awkward. Easier handling and reading of the flat magazine by the postal service should speed up sorting and delivery to the subscriber. The identification strip on the cover should encourage return of borrowed or "lifted" copies to the owner.

lands Corp., Savannah, Ga.; Champion Paper and Fibre Co., Canton, N. C.; Union Bag and Paper Corp., Savannah, Ga.; West Virginia Pulp and Paper Co., Georgetown, S. C.; Bowaters Southern Paper Corp., Calhoun, Tenn.; North Carolina Pulp Co., Plymouth, N. C.; Chesapeake Corp. of Virginia, West Point, Va.; Reigel Paper Corp., Bolton, N. C.; International Paper Co., Georgetown, S. C.; and Halifax Paper Co., Roanoke, Rapids, N. C.

N. C. S. Offers Quality Control Course

Under the direction of the N. C. State College School of Forestry and the College Extension Division, a short course in Statistical Quality Control for the pulp and paper industries will be held September 10-14 at Cataloochee Ranch, about 40 miles from Asheville, N. C.

The course will consist of intensive training in the methods of statistical quality control, with special emphasis on paper machine production, pulp testing variables, bleach plant operation and pulpwood analysis.

The following topics will be discussed:

Quality Control Charts—A description of the different kinds of control charts used, why they work and where they are applicable.

Quality Control for Continuous Operations—A discussion of the control chart techniques applicable to such continuous operations as paper making and drying, pulp refining, bleaching, recovery plant operation and waste disposal.

Quality Control for Batch Processes—A description of the method of control when dealing with such batch proesses as pulp digestion and batch bleaching.

Controlling Quality of Purchased Material—A survey of the methods of acceptance inspection developed by the military services, the Bell Telephone Laboratories and other agencies for the control of purchased items.

Inspection Techniques and Equipment—Standard inspection methods are evaluated. Inspection tools applicable to the paper industry will be discussed.

Advanced Control Chart Techniques—Special control chart methods which have been found useful in solving quality control problems of the wood using industries will be discussed. These will include: the master control chart technique; modifications for systematic effects; charts for largest and smallest; charts for grades and re-set run techniques.

Organization of a Quality Control Program—Here are discussed problems of installing a quality control program. The qualification of personnel to operate a good quality control program are discussed. Special attention is given to the relationship between quality control functions and production, engineering and design functions. Methods are described for selling a quality control program to the entire manufacturing organization.

Operations Analysis—A brief presentation of operational analysis or operations research will be made to indicate how this valuable tool may be used to guide pulp and paper mill management in decision making. Problems in simple applications of operations analysis will be demonstrated to indicate the extent that this tool may be utilized by regular plant personnel.

The course is designed for technical control supervisors, mill chemists, and production supervisors who want to become acquainted with statistical quality control for the purpose of determining whether he can put it to use. It is also designed for the engineer who wishes to use these techniques and for the engineer or inspector who wishes a refresher course. Advanced training in college mathematics and statistics is helpful but not necessary. Enrollment will be limited and applications will be accepted in order of receipt.

Instruction will be provided by members of the staffs of the Wood Products and Pulp and Paper Laboratories, School of Forestry, Department of Experimental Statistics of North Carolina College and by outstanding practicing quality control engineers from the pulp and paper industry.

Columbia Offers Packaging Course

Twenty-four packaging authorities including users, suppliers, marine engineers, consultants and eight trade association executives are again assisting Columbia University in presenting packaging in a 30 week series starting October 3 and continuing to May 22.

The first half of the series, known as G. S. I. E. 247, starting October 3, is called **Package Engineering Part I.** Devoted primarily to consumer unit packaging, it includes structural and merchandising designs and one lecture on packaging machinery.

The second half of the series, known as G. S. I. E. 248, starting February 6, is known as **Package Engineering Part II.** Engineering data on shipping containers of all types for the products of industry and agriculture are presented, including lectures on export packaging and special military requirements.

One of the unique features of these two packaging courses is that although Professor Frederick C. Winter supervises the general conduct of the courses and the examinations, all lectures are given by industry specialists with long years of practical experience in their respective fields.

Since the class meets only on Wednesday nights 7:10 to 9:00, travel schedules are not too difficult for packaging personnel living within 50 to 60 miles.

For those who can meet the university requirements two points for each 15 week course may be earned toward a bachelor's, master's or higher degree. Part I and Part II may be taken consecutively or separately in different years, according to the desires of the individual. Also, Part II may be taken first and Part I in a subsequent year. The tuition fee is $60 for each 15 lectures, plus a registration fee of $5. All lectures are given in Room 402 Engineering Building on the Morningside Heights Campus at 116th Street and Broadway.

The two courses are offered jointly by the Department of Industrial and Management Engineering, and The School of General Studies. Registration starts September 24. For additional information, and a copy of the complete course outline, with a list of the 24 lectures and their subjects, write Professor Frederick C. Winter, School of Engineering, Columbia University, New York 27, N. Y.

Big Pulp Chests Going in at Mosinee

Two 100-ton capacity high-density pulp storage silos are scheduled for installation at Mosinee Paper Mill Co. and will provide space to hold kraft hardwood pulps as well as kraft softwood pulp for blending into the various furnishes used for Mosinee paper grades. Heretofore, the pulp made in Mosinee's five digester kraft mill has been mainly for softwood species.

Included in the project is the erection of a new building adjacent to the former diffuser room to house the silos and the auxiliary dewatering and dilution equipment. The mill estimates the cost of the entire system at about $1 million.

Charles T. Main Inc. of Boston, Mass. are engineers in charge of project design and erection supervision. Contract for the erection of the building has been awarded to the Thomsen-Abbott Construction Co.

Mill officials also announced two more current construction projects. A load center for the pulp mill electrical distribution system, and in addition, the former guard lock gates for the mill hydro-electric plant are now being replaced by new steel gates of a modern design.

PAPER PEOPLE

A. R. Braun

Management Team Named For New Eaton Plant

A three-man management team has been appointed to be in charge of the Eaton, Ohio plant of The Hinde & Dauch Paper Co.

District sales manager will be Gene Beeken; plant production manager will be Alfred R. Braun; office manager will be Mack E. Manley.

The three men, who all report to the company's headquarters in Sandusky, Ohio, will share responsibility for H & D's Eaton operations.

Mr. Beeken, who will be responsible for the sales of all products made at the Eaton plant, comes to Eaton from Akron, where he was in charge of the company's sales office. Mr. Braun, a veteran of 40 years of service with H & D, comes from company headquarters in Sandusky, Ohio, where he was assigned to the headquarters production organization. Mr. Manley was head of the order and estimating department at the H & D plant in Gastonia, N. C.

The plant is now under construction and is expected to be in operation by January 1, 1957.

Brown-Bridge Appoints Rowlett

The Brown-Bridge Mills, Inc., Troy, Ohio, has appointed Tom S. Rowlett as St. Louis representative.

Mr. Rowlett will cover Missouri, Kansas, Nebraska and Southern Illinois for the company on their complete line of sealing, box tapes and gummed label papers.

Mr. Rowlett has previously been with the Chicago office of the company and lately has been working in the St. Louis territory with R. F. Godwin, who recently passed away.

Gene Beeken

M. E. Manley

H. E. Earl Named Finch Pruyn Purchasing Agent

Harry E. Earl has been appointed purchasing agent by Finch, Pruyn and Co., Inc., manufacturers of printing and converting papers, at Glens Falls, N. Y.

A. C. Clough, Jr.

New Sales Mgr. For Chase Bag

Chase Bag Co. has appointed Allison C. Clough, Jr., sales manager of its paper mill at Chagrin Falls, Ohio. He will direct nation-wide sales.

Two Promoted by Western Kraft

Thomas Syme was recently promoted from assistant superintendent to superintendent of Western Kraft Corp. Mr. Syme reports to Hugo Trygg, the general superintendent.

Mr. Syme came to Western Kraft in September, 1955, as technical director. Formerly, he was with Crown Zellerbach Corp. at Ocean Falls, Canada, where he served as technical supervisor. He was promoted to assistant superintendent for Western Kraft in February, 1956.

George Ahlquist was recently promoted to chief chemist from project chemist at Western Kraft. Mr. Ahlquist came to Western Kraft in August, 1955, from Longview Fiber Co., Longview, Wash., where he worked in the Technical Control Department. Prior to working with Longview Fiber he served as assistant chemist for National Container Corp. at Tomahawk, Wis.

Bull Named Asst. Gen. Supt. At Champion's Carolina Div.

The appointment of W. J. "John" Bull as assistant general supt. of paper and board manufacturing at Champion Paper's Carolina Division has been announced by H. A. Helder, vice-pres. and general manager at the Canton, N. C., mill.

Mr. Bull, a 19-year veteran with the company, has successively held the positions of chemist, senior chemist, technician and technical advisor to the general supt. of paper and board manufacturing, J. E. Hall.

In another announcement, Richard E. "Dick" Davis joins Champion Paper's Carolina Division as an administrative assistant in the industrial and community relations dept., headed by John M. Barnes.

Mr. Davis, a native of Raleigh and possessed of a background of education and experience in forestry, journalism and advertising, formerly held the post of chief of information and education for the Georgia Forestry Commission.

M.&O. Changes Sales Managers

Three re-organization promotions within the Minnesota and Ontario Paper Co.'s Paper Division have been announced effective August 1.

R. A. Campbell has been promoted from sales manager to general sales manager; J. V. Otness from assistant sales manager to specialties sales manager; James A. Vaughan Jr. from sales representative to newsprint sales manager—Paper Division.

P. W. Horeyseck

Horeyseck Made Mill Supt. At Gair's Piermont Mill

Paul W. Horeyseck has been appointed superintendent of the board mill of the Gair Cartons Division mill in Piermont, N. Y. Mr. Horeyseck started with the Robert Gair Co. in the research & technical service department at Uncasville, Conn., in 1945. He was appointed assistant mill superintendent at the Thames River Division at Uncasville in 1953 and manager of the American Coating Mills Division's board mill at Middletown, Ohio, in 1954.

Other Gair promotions includes Walter R. O'Keefe, Jr., to manager of the board mill at Middletown to replace Mr. Horeyseck, and of Henry G. Booth to assistant superintendent of the board mill at Thames River to replace Mr. O'Keefe.

To Manage Marathon's Ashland Mill

Larry S. Sabatke has been named manager of the Marathon Corp. plant at Ashland, Wis.

General paper mill superintendent at the company's Rothschild plant for the past ten years, Mr. Sabatke will succeed Ben H. Metternich, who is retiring after 48 years with Marathon.

Mr. Sabatke joined the company in 1922, working on a paper machine at Rothschild. He left in 1928 and went to work as a paper maker for the U. S. Bureau of Standards on a research farm at Ames, Iowa. In 1929 he joined the Maizewood Insulation Corp. at Dubuque, Iowa.

Mr. Sabatke returned to school in 1933, at Iowa State College, Ames, and received a B.S. in chemical engineering in 1936. For the next two years he was a research associate for the Institute of Paper Chemistry at Appleton. He next became a chemical engineer at Northwest Paper, Cloquet, Minn. In December, 1938, he rejoined Marathon as assistant paper mill superintendent at Rothschild.

Horace Freeman Retires

Consolidated Paper Corp. Ltd. has announced the retirement of Horace Freeman as technical director of the corporation. Mr. Freeman will continue as a consultant, devoting his efforts to special projects.

Prior to his association with Canada Power & Paper Corp., the predecessor of Consolidated, some twenty-seven years ago, Mr. Freeman had been active and still is in the work of applied research in the fields of extractive metallurgy and certain branches of the pulp and paper industry. To both of these he has contributed some basic developments which have received world-wide application. These include the manufacture of black cyanide for gold extraction, the Flash Roasting process for the treatment of mineral sulphiles, wet cyclone for pulp cleaning and mineral separation and more recently, the application of the wet cyclone to combined pulp cleaning and degassification which is effective in increasing the speeds at which larger paper machines may be operated.

New Traffic Committee Chairman

Oliver H. Stieber, general traffic manager, Gaylord Container Corp., Div. Crown-Zellerbach Corp., St. Louis, Mo., has been elected chairman of the Fibre Box Assn's. Traffic Committee and Olaf N. Rye, general traffic manager, International Paper Co., New York, has been named as its vice-chairman.

Long-Bell Elections

R. A. L. Ellis was elected financial vice president, succeeding L. C. Stith, retired and G. W. McGaw becomes treasurer of Long-Bell Lumber Co. who operate a hardboard mill and mechanical pulp mill at Longview, Wash.

DONALD FRANCIS MORAN, recent graduate of the University of New Brunswick, recently joined the forestry staff of the Dryden Paper Co. Ltd.

Julian Mendelsohn

A. W. Aron

They Are Right Now

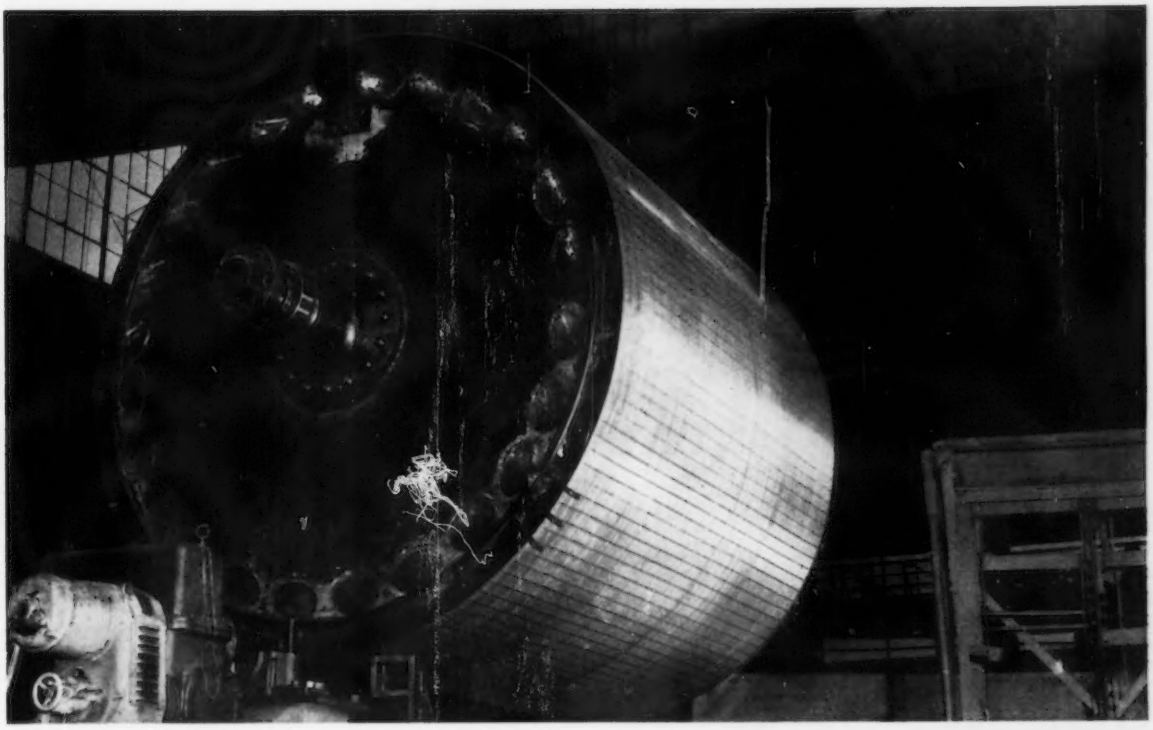
In an announcement in the July 9 issue of **Paper Trade** JOURNAL on page 16, regarding changes in Hudson Pulp & Paper Corp.'s sales staff, the wrong cuts were used to picture Julian Mendelsohn, vice president for sales administration and A. W. Aron, vice president and administrative manager. They are correctly pictured above.

American Box Board Promotions

American Box Board Co., Grand Rapids, Mich., has promoted Robert D. James to director of special food boards products sales, a new position which involves the bleach Kraft food board mill now under construction in the company's Filer City division. Mr. James joined American Box in 1940 and formerly was sales manager of the firm's Grand Rapids mills and folding box plant.

Also promoted were S. B. Williams to sales manager for the folding box plant and W. R. Tobin to sales manager for Grand Rapids mills.

Mr. James is a director of the Folding Paper Box Assn. and was chairman of its stock box committee two years. In his new post, he will remain in Box Board's main offices in Grand Rapids.



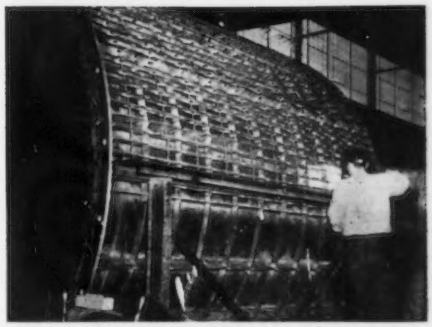
Armco Stainless Covers Filter Drums...

KEEPS STOCK CLEAN

Nearly all parts of this new 11½-foot filter drum that contact stock are made of solid, corrosion-resistant Armco Stainless Steel. Operating with three stainless-covered companion filters, it will help keep stock clean in a northern kraft mill's 4-stage brown stock washing system.

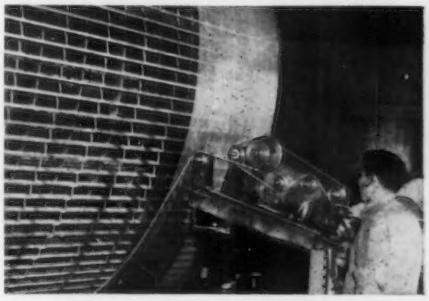
Because Armco Stainless Steel safeguards stock from contamination, it fills a vital role in these filters and in many other jobs where keeping stock clean is all-important. But that's not all. Because it's stronger, easy to clean, and more resistant to corrosion, pulp and paper mill equipment made of stainless steel lasts longer—cuts delays and saves maintenance dollars.

If you'd like to know where you can use Armco Stainless to advantage in your mill, write for the Armco booklet, "A Stainless Profit Story for the Pulp and Paper Industry."



Stainless divider rings in place. Lateral bars and spacer studs, also stainless, are being welded in position.

Armco Stainless wire, 2½ miles of it under 600 pounds' tension, almost completes the stainless drum covering. When installed, stainless wirecloth will be added.



ARMCO STEEL CORPORATION

1166 CURTIS STREET, MIDDLETOWN, OHIO

SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION

S. T. Penick
Sales Engineer, Link-Belt Co., Colmar, Pa.

Tells How to Use Most Advantageously

Conveyors and Other Handling Equipment in Pulp and Paper Mills

In such an important and constantly growing industry, many advancements are being made in the art of paper making from the procurement, handling, and processing of pulpwood logs to the production and handling of the finished paper product. Operators are becoming increasingly "material handling" conscious as there probably never has been a time when handling of materials has been so important to all industries. Certainly the stakes have never been higher, considering the cost of labor, shortages of experienced and phsysically fit manpower, and the need for more efficient use of existing plants. All of these conditions are intensified by the increasing demand for greater production, and a profitable operation requires careful analysis of each item contributing to the cost.

Production has been defined as "materials in motion." There are two motions involved — processing motion and handling motion. Processing motion adds value to the product; handling motion simply adds cost. Few manufacturers realize or appreciate the tremendous amount of time and money spent daily merely to move material.

The importance of the material handling problem simply cannot be overlooked and highly skilled attention should be given to the movement of material to lead to more efficient production techniques and lower costs.

In the Pulp and Paper Industry, some of the advantages of modern methods of materials handling are:

1—Reduced indirect labor costs.
2—Increased capacity of property and buildings.
3—Reduction of fatigue among workmen.
4—Conservation of skilled productive labor.
5—Reduced cost of transportation.
6—Greater safety to personnel and property.
7—Improvement in attitude of workmen, since they operate mechanized equipment rather than doing hard manual labor.

It will be impossible to discuss in detail all of the different types of conveyors used in the various parts of the paper mill, but we will attempt to cover most of the types used for handling logs, the feeding and handling of chips, pulp or stock conveyors, chemical handling, and the methods used in handling the finished paper. No attempt will be made to explain the methods used for selecting or calculating the horsepower requirements for the material handling equipment, since this would consume too much time and the information is readily available from handbooks, catalogs, and reference books. The paper industry does offer, from an engineering standpoint, a wide field in which to exercise ingenuity in working out efficient designs, specifying equipment that will reliably withstand the severe and in most cases, continous service in the mill.

Woodyard Conveyors

Water transportation is used in two principal ways—for bringing logs to the mill and for handling them in the woodyard. Mill cranes with grapples, or "jack ladders," are used for reclaiming logs from the water, the method depending on the design of the mill yard. Cranes or gantries are used for unloading barges and boats.

Log arriving by rail, if in box cars, are unloaded by hand directly onto yard conveyor. If they arrive in gondolas, or rack cars, cranes with slings, grapples, and rakes can be used for unloading. In the latter case, loading aprons with flat angle skirts are usually used since conveyors are not sturdy enough to withstand the heavy impact. The apron permits controlled loading of logs to the conveyor by dumping the logs on the apron and allowing them to roll onto the conveyor. Some experiments have been made with cars having hinged sides and dumped by tilting. These cars have proven successful, however, they are special and are not available in quantity at present.

Logs arriving by truck are usually unloaded on the same conveyor that receives logs from the railroad siding. Unloading is accomplished by hand, by cranes with slings or grapples, or in some cases, from dump trucks. In the latter case, a tilting table is used; it is very efficient and quick, since it allows the entire load to be dumped at once. This load, of course, should dump on an apron rather than directly onto the conveyor.

On the West Coast, a distringuishing feature of the pulp or paper mill is the pond where practically all logs are stored. Woodyard conveyors, as known in the east, are incidented in the west because of altogether different conditions.

In the eastern and southern sections of the country there are three general types of conveyor used in woodyards, handling what might be called normal pulpwood logs, 24" diameter logs being considered large:

1—Rope and Button Conveyors
2—Chain Conveyors
3—Belt Conveyors

The first two types have been used for many years. The belt conveyor is of rather recent application, but is rapidly increasing in popularity.

The type of woodyard conveyor, or combination of conveyors depends, of course, on the layout of the woodyard, the method of bringing wood to the yard, the available storage area and the amount of pulpwood storage that is necessary.

Rope and Button Conveyors

The rope and button conveyors are made up by using an endless steel wire cable with cast or fabricated discs clamped to the rope at even intervals and driven by a large pocket sheave to accommodate the buttons or discs. The cable operates in the bottom of a "V"

shaped trough and moves or pushes the logs that engage the buttons. These conveyors can be used for either horizontal or inclined operation and in some cases can be arranged to stock out on the inclined run and reclaim on the return run operating in a tunnel underneath the pile. Logs can be dropped directly into the conveyor trough, however, a feeder or a loading apron is recommended to prevent impact of the logs against the rope and buttons causing possible damage to the conveyor.

Chain conveyors are the most widely used of all conveyors in the woodyard and over the years a wide variety of chains have been used. Length of conveyors, size of logs and other factors have contributed to establishing certain chains as favorites in various sections of the country.

On the Pacific Coast, where the average log is 4′ to 5′ in diameter, and comes to the mill in long lengths, only one conveyor connects the log storage area to the woodroom. It is the "jack ladder" or haul-up conveyor. The chain usually used on these conveyors is a round link type manganese chain with spiked log chairs attached at intervals on the single strand. These chairs engage the logs and haul them up an incline from the pond to the woodroom.

For handling what may be called normal pulpwood logs, up to 24″ in diameter as found in the east and south, multiple strand "jack ladders" are almost universally used. An attachment extending 6″ above the top of the chain will handle logs up to 24″ in diameter on a 30 degree incline. For handling long logs which must be sawed, the lower the attachment, the better it will pick single logs out of the water. A high attachment may try to take several logs on one set of attachments causing a criss-crossing of the logs which must be straightened out before reaching the saw. The number of strands of chain will depend on log lengths and on conveyor capacity. Many types of chain are used for this service, including cast malleable or pintle type, combination steel, or rivetless.

Where logs are received at the mill in log pounds, multiple strand "jack ladder" conveyors running in a deep flat bottom trough are used to raise the logs from the water to conveyors going to the mill or to storage. The number of strands of chain used depends on the capacity of logs handled which are carried mostly lengthwise in more or less jack-straw fashion on the conveyor which extends about 12′ into the pond for proper loading. Similar conveyors are also used for removing logs from flumes.

Woodyard conveyors of the single strand type are commonly used for handling logs in the woodyard of the eastern and southern mills. These conveyors are used for handling logs from storage to the barking drums or to the woodroom if the logs are already barked. The usual design consists of a "V" shaped trough approximately 18″ wide at the bottom with 45 degree sloping sides and approximately 18″ deep. The chain is arranged to slide in the trough and is provided with regularly spaced pushers, spurs or attachments for propelling the logs. The return run slides back on a set of guides under the trough which is usually set above the yard level.

"The industry offers a wide field in which to exercise ingenuity in working out efficient designs and specifying equipment for materials conveying."

When these conveyors are loaded with an orange-peel grapple by crane from storage piles, the load is generally discharged on a loading ramp built alongside the conveyor. The ramp absorbs the shock of the logs and prevents damage to the chain due to heavy impact from the falling logs. Generally, the ramp is sloped at about 20 degrees into the conveyor so that the logs roll into the trough with a minimum of impact on the chain.

Chain Conveyors

Since the length of the chain conveyor is sometimes limited due to the loads and other conditions, it may be necessary to use several sections of horizontal conveyor with transfer chutes from the head of one conveyor to the foot of the next. When this is done, a section of approximately 40′ is rendered practically unusuable for loading, especially from railroad cars, due to the incline necessary to discharge into successive conveyors. Yard conveyors using combination type chain having 325′ centers are somewhat common in the south. Woodyard conveyors are subjected to the most severe usage —severe impact, due to stopping and starting under heavy loads and unusual abrasive and corrosive wear. It is therefore important to study the conditions under which these conveyors will be operated in order to select the best possible chain for the job.

Since the life of the conveyor chain is influenced to a considerable extend by the speed of the chain, it is good engineering to keep the speed as low as possible. Chain speeds of 75′ to 125′ per minute handling 60 to 100 cords per hour are common for single strand woodyard chain conveyors. Chain conveyors in the woodyard generaly are quite flexible since they can be used to operate at almost any location where they are needed and over any type of terrain, whether flat or uneven.

Flumes

Flumes are also commonly used for transporting pulpwood particularly in the south. One of the advantages of the flume system is the great length possible, permitting reclamation of logs from any point along the system. For handling 60″ wood, the flumes are usually made about 4′ wide, a width which prevents logs from jamming crosswise. The depth varies according to local conditions with the fall maintained from 1½″ to 3″ per 100′ to maintain proper velocity in the water. Flumes may be made of wood, concrete or metal, lined or unlined to suit local conditions. One flume in a southern mill is 1,450′ in length and is handling 100 cords per hour of 63″ wood with 12,000 gallons per minute of water. The capacity of the flume could be doubled if the barking drums could handle the load. Removal of bark and grit from the flume water is an important problem and must be carefully considered when studying the economy of this type system.

Belt Conveyors

Belt conveyors for handling pulpwood logs have had their greatest development in Canada, but in the last few years, there has been a general trend here toward the use of belt conveyors instead of long chain or cable conveyors. In the south, the belt conveyor is receiving more and more consideration where long center wood conveyors are required formally using chain conveyors or the flume.

Belt conveyors handling logs are generally made flat instead of troughed and are supplied with continuous skirt plates along the sides to prevent the logs from falling off. The width of the belt and the type belting used depends on the size and type logs to be handled. Generally, the belts are operated at speeds of 300 to 400 f.p.m. and are designed to handle a single layer of logs spread as nearly even as possible over the belt. The method of feed to a belt or chain conveyor is most important in order to place the logs as uniformly as possible and with the least amount of impact. For loading woodyard belt conveyors, a traveling type feeder arrangement is sometimes used which is especially designed to distribute the grapple loads to the belt in a gentle and uniform manner. Since it is easier to carry a load on a belt supported on anti-friction

"New manufacturers realize or appreciate the tremendous amount of time and money spent daily merely to move material."

rollers than slide or push the same weight of material, the horsepower requirements for belt conveyors are much less than either chain or button conveyors. The maximum incline recommended for belts handling logs is 10 degrees except in special cases and in order to go from horizontal to inclined sections in a single belt, a long radius up-turn must be used. Belt conveyors offer an ideal arrangement for feeding traveling stackers since the logs can be discharged along the conveyor by means of a tripper which deflects the logs into chutes feeding the stacker arm conveyors. Design and arrangement of belt conveyors handling logs must be carefully worked out to suit the type wood being handled and the conditions under which they must operate.

Woodroom

The log handling conveyors are generally the same type and design as used in the woodyard. Chain, belt and button type conveyors are mainly used for handling logs to the barking drums or the hydraulic brakers. In one case, a large diameter rotary table feeder taking logs delivered by a jack-ladder from a flume and distributing them to three barking drums is used. Hydraulic cylinder operated plows are used to deflect the logs off the table and into the chutes to the barking drums.

Conveyors for receiving logs from the barking drums are sometimes used for sorting logs, depending on the grade of pulp being made. Sorting conveyors operate horizontally in front of one or more barking drums and are loaded by means of a chute or inclined plate at the discharge end of the drum. These conveyors operate at a relatively slow speed so that operators standing alongside the conveyors can remove poorly barked logs and return them to a conveyor feeding back to the barking drum. Sorting conveyors are generally multiple strand chain conveyors without attachments operating about 75 f.p.m. and arranged to discharge the good logs into a conveyor to the chipper. When wide belts are used for this service, particular attention is paid to the spacing of the idlers so that logs will not fall from the drum on a section of belt directly over an idler roll. The rubber cover on these belts is generally made quite thick to prevent rupture to the carcass and also to add protection from picks used by the operators for pulling rejects off the conveyor.

Conveyors handling logs to the chipper are sometimes arranged to start and stop by the operator at the feed chute so that a uniform flow of logs can be maintained to the chipper.

Bark coming thru a barking drum may be collected on a belt, flight or drag conveyor, directly under the drum for dry barking or alongside the drum for wet barking. The wet bark is lifted from the water pan under the drum and discharged into the conveyor by means of lifting vanes on the drum. Flight conveyors are usually inclined which, in the case of wet drum barking, provides drainage. For long distance conveying, belts are used to carry dry bark to storage bins or if wet, to bark dewatering unit.

Bark put into bins has a strong tendency to arch and compact itself in the bin, so live bottom bins, becoming larger at the bottom, are generally necessary. This live bottom bin may consist of a series of chains with spur attachments or sometimes a series of screws, to pull the bark to one side and deliver it to a collecting conveyor which, in turn, feeds the boiler.

Chip Handling

Chips from the chipper are sent to chip screens for separating out the sawdust, oversize chips and slivers. The types of conveying and elevating equipment that can be used depend entirely on the layout. A live storage space providing approximately one minute of chipper operation between the chipper and conveying medium is recommended to provide for surges.

For a close-coupled plant, a pneumatic system might be used for elevating chips to the screen, or chippers might discharge directly into bucket elevators. Where space permits, the belt conveyor is a favorite unit with a double strand flight conveyor being next in line. Apron type conveyors have also been used for this type service.

Whatever system is used, it should be liberal enough in size to eliminate the possibility of build-up and take care of whatever surges might be encountered.

The highest grade of rubber belt should be used under chippers, with tough abrasion-resistant covers to take the impact of the chips. In the south, where freshly chipped wood is wet with turpentine oil and resin, a neoprene belt is recommended.

Some mills have chip storage bins located directly over digesters for direct discharge to the digesters. This, however, involves objectionable height of structure and equipment, whereas modern design places storage bins at ground level. Belt, flight or bucket elevators take chips from feeders under chip bins to the loading chutes of digesters.

A belt conveyor is the best method for handling chips. If sufficient horizontal space is available to get the necessary lift to the top of storage bins or the floor level at the top of the digesters, a belt conveyor has the advantage of high speeds to handle efficiently a large volume of chips. It has the further advantage of adaptability to the weighing of chips in transit and of low maintenance and operating costs. Discharge of chips from a belt can be accomplished by a traveling tripper, shuttle belt, or a series of hinged plows where distribution is required. Use of idlers with carrying rolls inclined at 45 degrees instead of the usual 20 degrees makes it possible to get greater capacity out of a given width of belt. Belts handling chips can operate on a 25 degree angle of inclination.

For circular silo chip storage bins, a rotating table feeder is used to feed chips at a uniform rate to the conveyors. Feeders varying in diameter from 8′ to 21′ are used with variable feed rates depending on the speed, bed depth of chips, and the plow setting.

For rectangular bins having a continuous opening at the bottom, the rotary vane or star type feeder is usually used, built in lengths or sections of 4′ to 5′ and in banks of 3 to 4 sections to suit the bin design.

Wide apron feeders have been used in some cases under storage bins. Then minimum width should be at least 7′ to prevent arching.

Logs for Groundwood

Logs for mechanical or ground wood pulp are generally handled on the same type of conveyors as in the woodyard. Provision must be made for a reserve storage of logs that will provide a constant supply to the grinders. The type and arrangement of the grinders usually determines the method of feeding logs to the grinder magazines. Flumes running along a series of grinders are often used for floating logs to them with an operator using a pick pole to move logs manually from the flumes to the grinder magazine. In some plants, a series of flat top apron conveyors are used to load the logs into the grinders without any manual handling of the logs. Other systems use the apron or multiple chain type conveyors for conveying logs adjacent to the grinder magazines where they are picked off by operators and fed down a chute to the grinder located on a floor below.

"Every material handling problem is different and must be carefully planned according to its own conditions and requirements."

Pulp Mills

Consistency of pulp is the factor which determines how it is to be handled; gravity flumed, pumped or moved by various types of mechanical conveyors or elevators. Pulp can be pumped up to about eight percent consistency; above that, it must be handled by conveyors.

Belt conveyors can handle pulp above eight percent consistency on inclines up to about 14 degrees. Because of their cleanliness, belt conveyors are particularly desirable in handling high grade pulp.

Screw conveyors have long been regarded by the industry as one of the most economical and acceptable means for moving pulp to and from storage and between stock chests, thickeners and washers. Some advantages of screw conveyors are low initial cost, small cross-sectional area, no need of return run, adaptability, simplicity of maintenance, ease of erection and completely enclosed construction. In some cases the screw conveyor is used as a preliminary screening unit when handling cooked chips from the digesters by having the trough made of ⅛" diameter perforated plate and fitted with high pressure sprays to push through the acceptable stock.

Screw feeders are excellent for metering the flow of pulp or partly cooked chips. Since the amount of material fed is directly proportional to the speed, a variable speed drive can be provided to change the rate of flow at will.

Vertical screw elevators, or "Roto-lifts," have been successful in handling pulp of over seven percent consistency, within the capacity limits. A single unit has a lift of about 40' which can be increased by addition of other units if greater height is necessary.

For charging laps of pulp and waste paper stock into pulpers, wide pan type apron conveyors, belt or slat conveyors are often used. Usually the conveyors are horizontal below the floor line where the paper or pulp is loaded, then inclined at the head end for discharge into the pulpers.

Skip hoists, having a bucket capacity of up to 2000 lbs. and push button semi-automatic operated, are used to handle loads from either one or two floors and discharging whole batches to the pulper quickly.

Finishing, Shipping and Storage

The roll from the winder must be gently lowered to the floor, perhaps for immediate wrapping, weighing and marking or for transporting to another area. This can be solved by use of an hydraulically operated platform for lifting the finished rolls out of the rewind stand bearings, automatically rolling them over to a stop, lower the platform and release the stop to allow the rolls to gently roll off onto the floor.

Rolls must be taken from the station where they are wrapped, weighed and marked, which may be on the same floor or other floors, and disposed of either to storage or to the shipping platform. There are many methods and devices available for handling these rolls—cranes of various types, monorail carriers, lift trucks, tiering machines, gravity and live roll conveyors, power conveyors, elevators, lowerers, and even the lowly hand truck. Selection of the system or combination of units which will work out to the best advantage depends on the location of the storage area and the shipping platform.

Floor area is valuable in a warehouse or shipping platform and should be entirely open to truck travel. Conveyors should, therefore, be flush with the floor so that industrial trucks and pedestrian traffic can cross them. This indicates a pallet type conveyor which has several advantages:

1—With pallets flush with the floor and with opening between pallets reduced to a minimum, no large object can drop through to the pit and cause trouble.
2—They can operate up inclines.
3—Paper rolls can be easily loaded on or pushed off a floor level conveyor and the flow of rolls to and from the conveyor can be accurately controlled.
4—A pallet conveyor lends itself to interlocking and timing with other units such as pushers, turntables and weighing and transferring devices.

Pallet conveyors may be designed to suit the requirements and are usually made up with flat top steel pallets fastened to a double strand long link type roller chain. Usually the pallets are slightly grooved to keep the rolls centered on the conveyor.

Some conveyors handling rolls of paper are made of narrow belts operating at floor level and supported on closely spaced idler rolls. These belts are loaded either by hand, or by pushers and are equipped with automatic pushers for removing the rolls from the conveyor onto another conveyor, or to a descending conveyor which carries it to the shipping dock.

Many various types of machines for elevating or lowering rolls of paper have been devised. The skip hoist type unit due to its intermittent operation is limited in capacity but is generally favored because it occupies less space. The suspended tray type elevator or lowerer has a higher capacity than the skip type units and is generally used where higher travel is necessary. The floor space required on this machine is great as compared to the skip type unit, since the clearance must be maintained for both the raising and the lowering trays or arms.

Another method of handling finished stocks of paper in a warehouse is by means of an overhead trolley conveyor which is used to tow trucks through the warehouse and shipping dock area. This system is simple and economical and yet provides a very flexible method of assembling and dispatching a variety of orders quickly and in an orderly manner.

Chemical Conveyors

Hot lime conveyed from kilns is generally handled by single strand chain flight conveyors operating in a steel or cast trough with the material being conveyed on the lower run. The flights are generally buried in the material with the chain riding above the bed of hot material, remaining relatively cool. Either a forged steel rivetless type chain or a heavy pintle type chain with attachments is recommended for this service.

Crushed limestone brought in by rail cars is generally unloaded in a track hopper from hopper bottom cars. From the track hopper, the lime is fed by means of an apron feeder to a bucket elevator or to an inclined belt conveyor to a storage bin.

Salt cake is handled in double strand flight conveyors using rivetless type chain with success. The open type joint construction of the rivetless chain prevents material from packing and hardening in the joints. This material has been also handled satisfactorily in screw conveyors, centrifugal discharge bucket elevators and Bulk-Flo type conveyors.

Soda ash is used in both the heavy and light types in processing pulp. Regular centrifugal discharge bucket elevators will handle the heavy ash but for light ash, a continuous discharge bucket elevator operating at a moderate speed

of 80 to 90 f. p. m. is recommended. Due to the fluffiness of this material, a screw conveyor is most commonly used and the Bulk-Flo has also been used with success. If long distances are involved in the movement, pneumatic conveyors are generally used.

Sulphur is somewhat hazardous in handling due to sparking and possibility of explosion. Metal conveying equipment such as screw conveyors, chain and flight conveyors, and bucket elevators are generally furnished of non-sparking material, such as brass or stainless steel. Belt conveyors are used for conveying over long distances. If lumpy material is handled, a centrifugal discharge type bucket elevator can be used; if pulverized, a continuous discharge bucket elevator is recommended.

Clay is handled on various types of conveying equipment, depending on its moisture content, and abrasiveness. Material that is dry, reasonably free flowing, and not too abrasive can be handled in screw conveyors and in continuous discharge bucket elevators. Where transporting distances are great, belt conveyors are generally used for handling this material. Bagged material is sometimes handled on pallets transported by means of lift trucks. Single arm or tray type elevators are used for handling bagged material in vertical planes.

Power Plants

When coal is used as a fuel, the problem of unloading, storing, crushing, weighing and handling to the stokers or pulverizers must be considered. Practically all types of bulk handling conveyors are used for handling coal, depending on the quantity to be handled and the arrangement of the power plant. For small tonnage, reciprocating or flight type feeders are used under a track hopper feeding to an elevator which discharges to a storage hopper. For distributing to the boilers, various methods are used such as screw conveyors, flight conveyors or weigh larries. Larger installations generally use belt or apron type feeders to belt conveyors handling the coal to the bunkers by way of a crusher if necessary. Bark, sawdust and refuse are also used as fuel and require conveyors for handling to the boiler house.

Conclusion

There is no such thing as a standard conveyor package specifically designed for a paper mill. Each material handling problem must be given careful and serious consideration in order to assure good performance.

From a lecture given to the students in the pulp and paper courses at the University of Maine.

In Support Of Paper Jobbers

Recently your editors of Paper Trade JOURNAL received and turned down for publication an article on the role of the paper jobber. We thought the approach to the story was not suitable for this publication, but agreed with the author, James Rose, president of The Jacar Corp., his story was worth telling. We therefore invited Mr. Rose to send us a letter and include in it the salient points of his article. The following is his reply:

Mr. John C. W. Evans
Editor
Paper Trade Journal
15 W. 47th Street
New York 36, N. Y.
Dear Mr. Evans:

With regard to our recent conversation, I feel there should be a greater understanding of the important role the jobber plays in the paper industry.

The jobber's role is often overlooked, or minimized, despite the fact that he performs a necessary and even vital service.

To illustrate the extent of this service, Department of Commerce figures show that in 1955 jobbers handled $3 billion of the total $10 billion trade in domestic pulp, paper and paper board products. It should also be noted that in the paper business, many of the orders are small and varied. Obviously, much wasted effort would result if the buyer had to make many small orders direct from many mills, and the mills had to fill all such requests. But the jobber meets this problem efficiently by maintaining a centrally located warehouse, and stocking the products of many mills. Because the jobber has the facilities, he can also handle bigger orders, or because of his intimate knowledge of local needs in local areas, he can go after them.

Actually, only a small percentage of mills have found it feasible to sell direct to the buyer. To do so, each mill would have to operate a central warehouse stocking all its products. This would mean expensive maintenance as well as a pyramiding of shipping costs.

Often, the paper jobber can anticipate orders and stock up, whereas a factory salesman as a rule is not stationed in one area long enough to maintain close contact with the buyer on future needs or keep adequate records of what might be needed at the moment. In addition, smaller mills can't stand the expense of detailing salesmen to cover the country.

One very important advantage the jobber offers to each manufacturer is in his extreme usefulness to the buyer. Here are some of the ways in which the jobber helps the buyer:

1. Because he handles a number of complementary items, he offers the buyer an opportunity to purchase several lines in little more time than it takes to select one, and the buyer sees only one salesman.

2. An established jobber cannot afford to handle inferior merchandise or products made by manufacturers who do not stand behind their wares. A good jobber investigates thoroughly before taking on a new line.

3. The jobber is in a position to do intensive market research on a new product because he has the established territory in which to experiment and because he has other lines to sustain him.

4. The jobber sees examples of good promotions throughout his territory and passes them along. Ideas used to promote one line frequently can be adapted to others.

5. He is often able to arrange promotional tie-ins among the various lines he carries, thus boosting sales for each item at a minimum of cost.

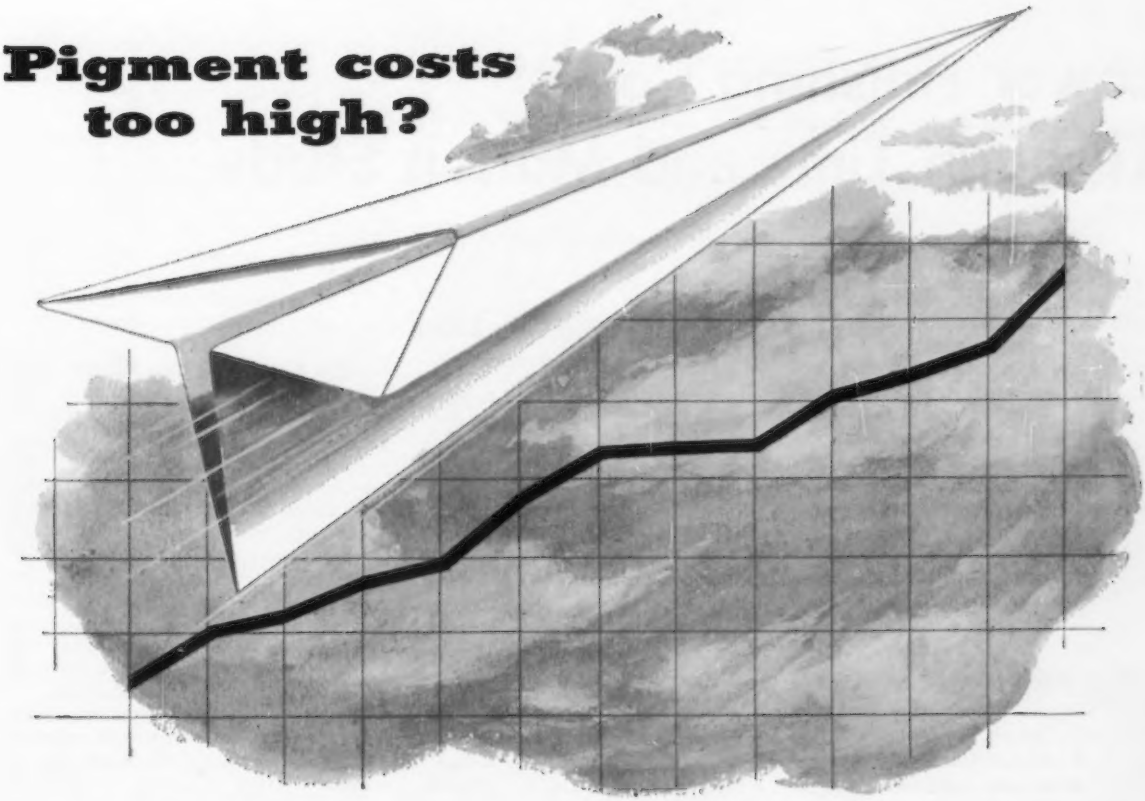
6. An alert jobber knows the business trends in his territory, and can advise the buyer on items and price lines that will be most in demand.

7. Because his professional reputation is his biggest asset, the jobber cannot over-sell or mislead his customers. He knows that if a buyer is unhappy with one item he will be suspicious of every other line carried by the same man.

The paper jobber is a permanent and indispensable fixture in the paper business. Though many people in the industry need to be reminded of this fact and the reasons for it, the proof is evident in the job he is now doing.

Very truly,
James Rose, President
The Jacar Corporation
Chicago, Illinois

Pigment costs too high?



Your Celite engineer can help you make TiO_2 go further...work harder

● If you are using TiO_2 alone in your furnish, call in a Celite* engineer. He'll be glad to show you how you can reduce pigment cost substantially by substituting Celite for a portion of the TiO_2. His test runs will also demonstrate that brightness is increased by this combination because Celite contributes its own intrinsic high brightness (up to 90) and also helps retain more TiO_2 in the sheet.

Another money-saving advantage of Celite is its high bulking action. This light, fluffy low-cost filler can be used to increase board bulk up to 10%. At the same time machine speed can be increased by a corresponding amount to give you greater output.

The Celite engineer is trained at the Johns-Manville research center where an actual miniature paper mill is in operation. You'll find him well qualified to assist you no matter what your particular conditions may be. And there is never a charge for his services. For further information, write Johns-Manville, Box 14, New York 16, N.Y. In Canada, Port Credit, Ontario.

*Celite is Johns-Manville's registered trade mark for its diatomaceous silica products. In the paper industry, it enjoys wide use in the control of pitch, to increase opacity and brightness and to provide better ink receptivity and absorption.

Suggested use of Celite with TiO_2

TiO_2 Proportion	Suggested Combination
Up to 2%	Add 1% to 5% Celite
5%	4% Celite—3% TiO_2
10%	5%-10% Celite—5% TiO_2

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PRODUCTS FOR THE PAPER INDUSTRY

Lower Finishing Costs Through Time and Motion Study

Do You Measure Your Labor As Carefully As You Do Your Materials?

Alfred N. Timberlake

Standards Div., Industrial Engineering Dept.,
S. D. Warren Co., Cumberland Mills, Maine

Paper manufacturers are engaged in the process of turning such materials as wood, clay, starch, size, color, etc. into paper. A great amount of time and money have been spent in order to promote maximum control over the cost of these expensive materials. Wood is measured by the stick, dry materials by the pound, color by the ounce, etc. Manufacturers realize that when a unit of paper contains more materials than another like unit, it does not necessarily command a higher selling price. In the interest of economy, there must be a uniformly low material cost throughout all of the items. In modern mills, a concentrated effort is also being made to control another commodity which goes into the finished product. This effort is receiving as much or more attention than the measurement and control of direct materials. This other commodity is used throughout the paper manufacturing process but in the Finishing Department it is by far the most costly single component. What is it? It is **Labor.** It has been said that the Finishing Departments are merely a necessary evil in the making of paper. This notion probably stems from the fact Finishing adds nothing to the intrinsic value of the paper but serves only to inspect and unitize convenient lots and sizes so that they can be moved from the mill to the consumer. Since the finishing operation is contributory in nature and since the cost is so closely related to the labor expenditure, this article has been prepared to show how labor costs can be measured and controlled as scientifically and accurately as direct material.

Measure Of Labor Is Time

All through the ages the measurement of labor has always been time. In ancient days a slave was bought for a lifetime. Later, under the apprenticeship system, a man learned a trade and then sold his services at so much a year. Later, as labor became more valuable, a man hired out at so much a month, so much a day, and so much an hour. It is logical that time should be labor's yardstick. Time is without doubt the most important single factor in our lives. Everything we do uses up time. At a certain time we get up in the morning, we dress, we eat, and otherwise prepare ourselves for the day ahead. If we are orderly in our lives, we perform each of these functions in a more or less routine manner. If we get up too late, or take too much time to eat, etc. we disrupt our schedule for the day. This precept is recognized and accepted by each of us. When we reach our places of work, the pattern is continued. We know that we are expected to do certain work and we will be paid for the time we use in accomplishing the task. Few if any of us will deny that labor is anything else than people using up time which must be paid for. In recent years, the most common measurement of labor has been "so much an hour" but many manufacturers are coming to realize that this isn't good enough. The question has arisen —How much work should be done during this hour? The answer to this question brings us to the case in point —the need for an accurate and scientific measure of time to insure a maximum return upon every penny spent for labor.

Factors Affecting Time Use

It has been established that from the standpoint of economy in industry, time represents a certain amount of money. Every operation consumes a certain length of time. In order to be sure that every split second is being used to the best advantage, labor must be measured as accurately as possible in terms of time. This can best be accomplished by first examining the following factors which can cause an operation to consume more time:

1—Effort put forth by the operator.
2—Skill of the operator.
3—Method employed by the operator.
4—Working conditions.
5—Quality of product and condition of equipment.

The foregoing are not the only factors which can affect time consumption but they are the ones which should be examined first.

Motion and Time Study Defined

An analysis of the above items is generally called Motion Study. By definition, motion study is simply the technique whereby the basic motions of a task are observed in order to facilitate improvements in these motions and promote the type of performance which insures the best use of time and effort. No motion study can be completed and no analysis of method is finalized until an observation and evaluation is made of the time required to perform the operation. The technique of scientifically recording operational time is called Time Study. It is obvious that motion and time study are

so closely related as to be almost synonymous. And motion and time study in action are the tools whereby labor can be scientifically measured and controlled.

Perhaps no science has been more muddled and misunderstood than motion and time study but it is essentially a simple process. It consists of two operations: First—separate a job into its basic elementary parts. Second—determine the shortest time required to accomplish each part. It hardly seems necessary to "sell' motion and time study to industry in the face of the following concept: The degree of control over the direct labor cost of an operation depends almost entirely upon the degree with which these labor costs can be measured. Motion and time study rise to their full stature when it is remembered how many factors there are which can cause an operation to consume more time. How many degrees of effort are there? How many degrees of skill? How many different methods? Working conditions? Qualities of product? **But there is only one combination of all of these which will allow for the minimum cost!**

How are your Working Conditions? Do you know how much time (money) poor working conditions may be costing in your finishing operations? Time and motion study can give the answer.

Getting Down To Cases

All that has been said up to this point has been meant to serve as background for the following concrete illustration of what can be done to measure and control the labor cost of finishing paper. Let us examine a typical finishing operation—the sorting of paper:

- **Effort.** A motion study will quickly show that a greater amount of time will be consumed by an operator sorting sheets slowly than an operator who is working rapidly. A time study will reveal some astounding time differentials which would be hard to detect without the aid of a stop-watch.
- **Skill.** A motion study of an unskilled operator will show that while the effort may be constant, the amount of time consumed by an unskilled person will be much greater than that of a skilled worker. In extreme cases the effort may be tremendous and the output very small. A time study will show that the time variances for the same amounts of work will be very great even though both skilled and unskilled operators appear to be working equally hard.
- **Method.** A motion study will show that even when effort and skill are the same, there are certain operators who will accomplish greater economy of movement than the others. A time study will reveal that differences in method can sometimes cut time consumption in two.
- **Working Conditions.** The three foregoing factors are more or less dependent upon this factor and motion and time study will reveal the degree of effect.
- **Quality Of Paper.** A motion study will reveal the effect that quality can have on the time required to sort paper. Time study will show the degree of effect. Don't be surprised if abnormally poor quality is doubling your sorting time and doubling your sorting direct labor cost.

It is hoped that at this point the reader has begun to sense how elementary an analysis becomes when the fundamentals of motion and time study are utilized. Once the sorting operation has been subjected to a motion and time study and the task has been separated into its basic motions, it is easy to measure and control the labor cost. Remember that labor cost is equivalent to the time required to complete the job. The next step is to analyze all of the factors which can cause an operation to consume additional time. The only way to be sure that all operators are putting forth a fair amount of **Effort** is to determine what a normal output of sorted paper should be. Once the standard of effort has been set, the **Skill** of the operators should be analyzed to see if any effort is being wasted. The analysis of skill leads up to the **Method** being employed by the operators. The ONE best method should be isolated, written up, and followed! **Working Conditions** should be such that they do not hinder a normally skilled operator who is putting forth normal effort according to the best method. The notion that paper is made in the Sorting Room should not be tolerated. The **Quality** of paper should be kept within a reasonable tolerance because abnormal waste has an adverse effect upon all of the foregoing factors.

Competition Keeps Us On Our Toes

This article was intended primarily for those readers who are not entirely satisfied with their present performance. This probably includes almost everyone. Suppose then, a motion and time study reveals that the efficiency of the sorting operation leaves something to be desired. What can be done about it? At this point, motion and time study become even more significant because a properly taken analysis will pinpoint the "soft spots" in the operation. The answers to the following questions take on a real significance: Have the operators ever been tested for skill? Were they carefully selected? Are they temperamentally suited for the job? Are they properly trained? Physically capable? If NOT, don't expect maximum efficiency. How about YOUR sorting method? Do you know what constitutes the best method? Does the operator begin and end the operation with both hands at the same time? Do the two hands move in opposite directions simultaneously? Does the operator utilize momentum wherever possible? Are the motions curved rather than straight line? Are the movements rythmical? Does the operator have to reach beyond the normal work area? If the answer to any of the above questions is doubtful, the method should be given a careful study.

Have you considered hydraulic tables to maintain a constant work level? Are you dubious about the cost? How much time (money) would hydraulic tables save? Motion and time study can give you the answer. How are your working conditions? Are your stations well lighted? Is the temperature right? How much time (money) are poor working conditions costing you? Motion and time study can give the answer. Are your manufacturing departments passing too much bad paper along to the sorting department? Do you realize what abnormal waste can do to your sorting time (money)? Motion and time study can give you the answer. Once the answers have been found to all these questions, a standard time value can be placed on the sorting task. The operational labor cost can then be measured. To control the cost of labor, it is only necessary to establish a moral incentive or better still a monetary incentive to be certain that all operators are working at their maximum efficiency.

Taking Out The Guesswork

The illustration which has just been presented involves one of the simpler Finishing Operations but the same application can be made for any finishing task. Once the direct labor motion and time study has been made, the point has been reached from which an all-out cost reduction program can be launched. The first step is to establish a standard or budget cost so that a ready comparison can be made periodically between expected and actual costs. This procedure enables the manufacturer to be certain that he is "holding the line" costwise. The second step is to make a **continual** effort to reduce costs by reducing the "standard". There are many accepted cost reduction procedures but they all start with an idea that is eventually put into practical use. The best time to evaluate a new idea is while it is in the experimental stage. If a motion and time study has been made and a time value has been placed upon every minute motion, it is easy to predetermine the cost effect of a new methods proposal.

Conclusion

Motion and time study are the best tools available at the present time for use in controlling labor costs. The most fertile field for application of these tools in a paper mill is in the finishing departments where the cost is made up primarily of labor. Motion and time study can do many things for modern industry but specifically the following objectives can be attained: It is possible to determine the ONE "best way" to do a job. By providing a complete picture of a task, motion and time study shows what has to be done, how it is done, where and when it is done, and who does it. It remains then to study the picture and decide if any part of the job can be eliminated, combined with another part, improved, or simplified. This can be done for any job—large or small. Once the best way is developed, the opportunity is there to examine the overall layout and discover if there is any more economical flow of work. After the method and layout have been formulated, a "fair day's work" can be determined and secured by some sort of incentive.

It is hoped that this article has succeeded in providing the reader with a better understanding of the principles and potentialities of motion and time study. It is further hoped that the reader is convinced that motion and time study have a definite place in every modern industrial program.

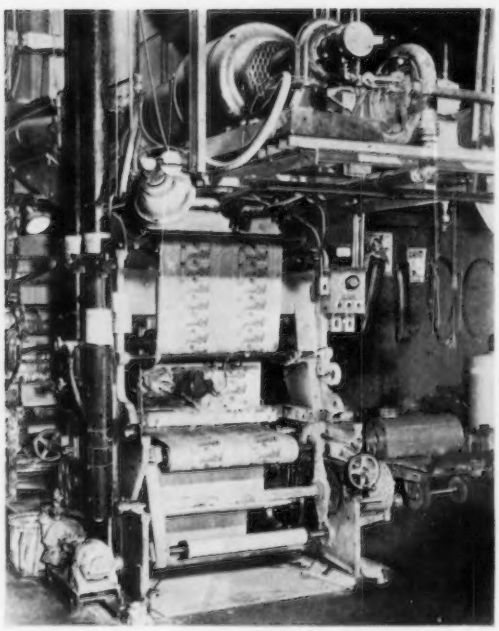
Increased Printing Production Through Use of Gas

In order to increase production, the Pacific Waxed Paper Co., Seattle, Wash., has installed gas-fired drying equipment on many of their converting machines and printing presses. They print and wax papers for bread wrapping; print cellophane for specialties and print plastic sheets for the Pacific Coast, Alaskan and Philippine markets. This particular plant is the only one of its kind in the State of Washington.

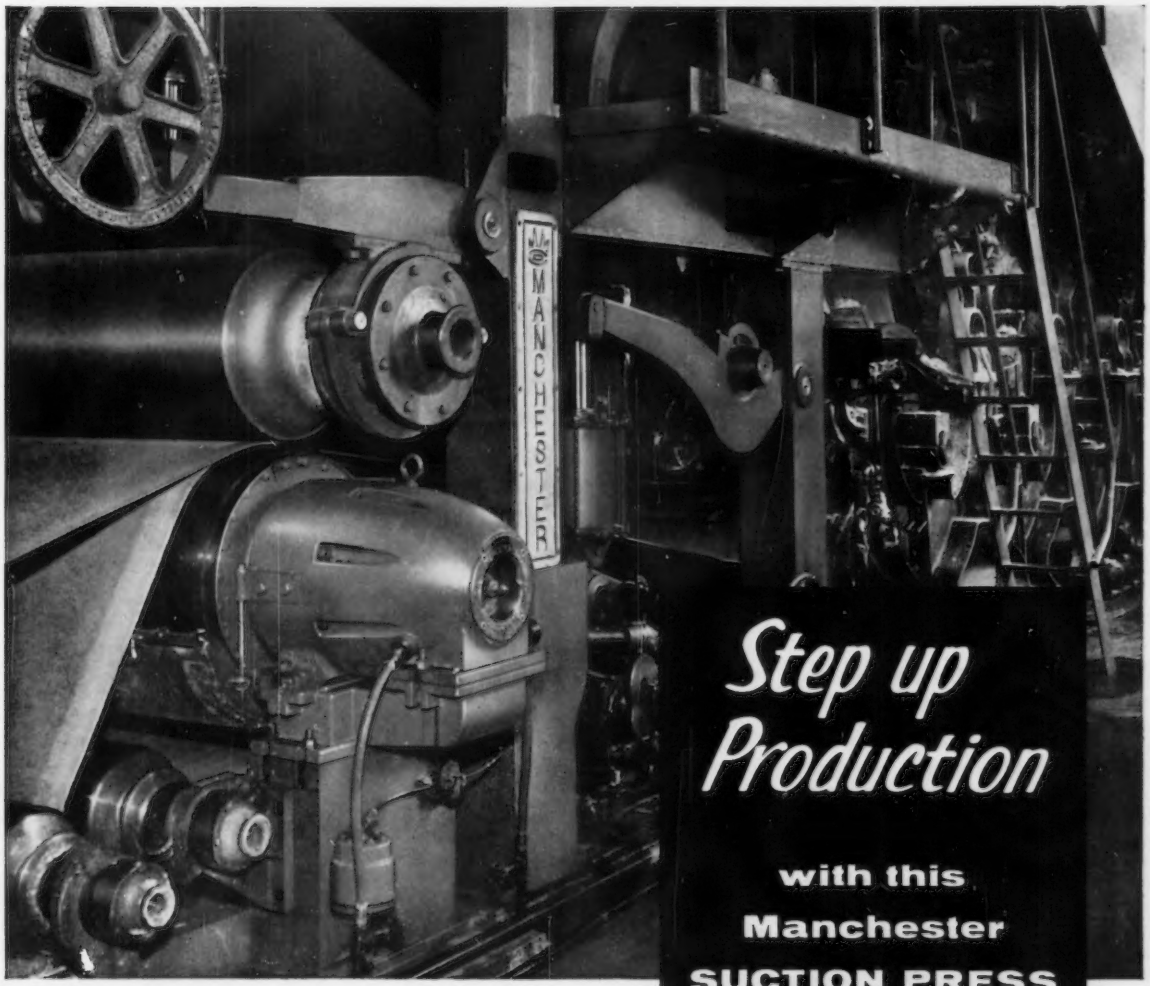
The most outstanding use of gas in this plant is for the ink drying on cellophane between colors and after final printing. This is done by means of a gas-fired external air heater attached to the flexographic presses. Other materials processed on the flexographic presses requiring hot air drying are polyethylene, pliofilm, paper, foil, Saran wrap and acetate film. On some of the printing presses, ribbon burners have been installed so that the flame comes in contact with the cellophane web to fuse the dried ink to the coating at about 180°F. On these installations the web runs at about 300 f.p.m. and there are the usual safeguards to remove the flame should the speed fall below a certain rate or should the web break.

With the addition of gas air heaters for final drying and between color drying, press capacity has been increased several times the former speeds. Regular web cylinder presses, gravure and stereo presses are used for most of the printing operations and steam is used for most of the drying.

All steam requirements are presently met using oil-fired Scotch marine boilers, but surveys have been made for converting the boilers when natural gas arrives in the area in late summer 1956.



INK DRYING — gas-fired external air heater, upper right, is used by Pacific Waxed Paper Co. to dry ink printed on this six-color flexographic type press. Cellophane, polyethylene, pliofilm, paper, foil and Saran wrap, are also printed on this press and require hot air drying.



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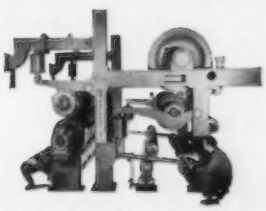

THE MANCHESTER MACHINE COMPANY

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What Causes

Kraft Dissolving Tank Explosions

Wharton Nelson
Kreisinger Development Lab.
Chattanooga, Tenn.

Combustion Engineering, Inc.

E. H. Kennedy
Paper Mill Equipment Div.
New York

II. MILL INVESTIGATIONS

In the first part of this article published in last week's issue, the authors discuss a series of laboratory tests in which they attempted to identify chemical constituents that contribute to the frequency and severity of smelt dissolving tank explosions. They then proceeded to make field tests to determine the practical application of the laboratory investigations. This part of the article discusses the results of the field tests and offers eight recommendations for avoiding explosions or reducing their intensity and frequency. The authors drew a sharp distinction explosive pool-type smelt and the usual non-violent type which constantly drains from the bottom of the ash bed at the surface of a decanting or refractory bottom furnace.

It was not long before we had an excellent mill on which to experiment. This unit was of late design and had a rated capacity of 1,050,000 lb dry solids per day, roughly 300 equivalent tons. Strong black liquor to the unit was measured by a Fischer-Porter flow meter. Total air rate was regulated by the liquor charge rate, so that the air-to liquor ratio was constant at any burning rate if the solids in the black liquor from the cascades could be kept fairly constant. The proportion of primary-to-secondary air could be varied manually but was usually left at the normal 60/40 ratio. The smelt-shattering system here was the most efficient of all the plants visited. Each smelt spout had a main steam shatter nozzle (fishtail design) which was usually left on at a low pressure and an auxiliary nozzle on either side which could be turned on quickly in case of emergency. The pair of auxiliary nozzles could be regulated by a common valve from a safe location on the back side of the furnace away from the spouts. No shattering medium except steam was used. Usually 10-25 psi. was sufficient to eliminate quenching noise entirely but 100 psi. pressure was available for emergency.

Severe Explosion

A severe smelt dissolving tank explosion had caused serious damage the week before we arrived, forcing a twenty-four hour outage of the entire plant. The explosion had occurred while operating at 155 percent of design capacity burning rate when, with the induced-draft fan at maximum rate, a clogged black liquor nozzle was removed for cleaning, and left out. The bed was at high level and this sudden increase in air-to-liquor ratio resulted in a sudden melting of the ash bed. The large volume flush caused a damaging explosion before the auxiliary shatter nozzles could be turned on. With this set-up, a flush could also result at high burning rate through prolonged plugging of the black liquor flow meter. Chance for a meter plugging, however, was of little consequence when the lines were steam purged as necessary.

High Burning Rate

Burning and smelt quenching progressed smoothly when the unit was run at 106 to 139 percent of design capacity. When the burning rate was increased above 139 percent, or the total air decreased below the normal air-to-liquor ratio, a deep bed built up quickly and smelting became slower. Orsat flue gas analyses, before the cascades, indicated a slight deficiency of air even at 117 percent of design capacity. The induced-draft fan ran at maximum speed at 144 percent of capacity. A number of preliminary tests had been completed before the decision to run at 155 percent of design dry solids burning rate, at which the previous explosion had occurred. The primary air, however, was increased at the expense of secondary, leaving the total air-to-liquor ratio the same. This change like all others had to be made in gradual increments over a period of several hours. The new primary-to-secondary air ratio was 70/30 rather than the normal 60/40. The idea behind this experiment was to lower reduction from the usual 99.2 percent to a figure below 95 percent, which lab quenches had indicated was safer, by increasing the primary air. All airport dampers were left in a standard position during the test. Reduction was lowered only to 98.8 percent. Operation, however, was very smooth and trouble free all day. No explosion or sustained violence occurred. Both spouts ran free with even less lancing than for a normal burning rate.

Primary airports remained unusually clean. The ash bed remained low and dry. Smelt pools did not form.

Formation of Jelly Like Chunks

The final test was run at 155 percent of capacity using a 65/35 primary-to-

secondary air ratio with total air constant and at maximum I. D. fan rpm. The slower running smelt spout soon began to plug almost continuously. The fire seemed a duller color than normal. Carbon monoxide ran 2.95 percent. Violent quenching jelly-like lumps of smelt often came from both spouts. These lumps fell in a different trajectory than the fluid smelt and were not shattered even by 100 psig steam pressure. Evidently the 65/35 ratio provided too little primary air for smooth operation.

Temperature measurements later at another kraft mill with an optical pyrometer showed that molten smelt containing these jelly-like chunks ran 1440 deg. F but during smoth operation with normal smelt flow, the smelt ran 200 deg. F higher. Jelly is believed to be a combination of burning ash and solidified smelt which indicates operation at too low a temperature. Measurements were made only on fluid, ash-free smelt coming out of the spouts. Burning ash particles on the jelly and smelt did not give true temperatures with an optical pyrometer which is designed only for black body radiation. On clear smelt, however, optical pyrometer and thermocouple temperature measurements agreed within 0.5 percent, the accuracy limit of the pyrometer.

Effect of Bed Level

Another test in which even more primary air was employed might have proved interesting. There is, however, a danger of black outs and damage to refractory with too low a bed since increased primary air causes the ash to burn nearer the bottom of the unit.

The ash bed serves not only as a reactor where more efficient reduction of sulphate to sulphide occurs, but also as a partial furnace temperature regulator. When the furnace is too hot more ash melts and heat is removed by the molten smelt. When it is too cold, the smelt freezes and heat is released into the furnace. This mechanism tends to protect the furnace bottom. An ash bed deeper than necessary for efficient reduction of course can be hazardous. A dangerous flush can result with a high ash bed when the total air-to-liquor ratio is suddenly increased.

Explosive Pool-Type Smelt

Quenching violence did not seem a necessary consequence of high burning rate and/or high bed operation; however, both increased its occurrence and rate of development. Violence appeared chiefly a result of quenching flushes of poorly shattered molten smelt (a) from deep stagnant pools in the bed or (b) produced by a sudden increase of total air-to-liquor ratio. In such pools, the smelt became modified so that it quenched many times more violently, pound for pound, than ordinary smelt. The violence of various types could be compared roughly by the pressure of shatter steam just necessary to eliminate all quenching noise at a comparable smelting rate. Normal smelt required only 10 to 15 psig. Pool smelt often required 60 psig with 30 psig auxiliary steam for about the same rate of flow. **A distinction should be drawn between this explosive pool-type smelt and the usual non-violent type which constantly drains from the bottom of the ash bed at the surface of a decanting or refractory bottom furnace.** Even the most explosive type quenched noiselessly, however, if shattered into small enough particles before striking the main body of green liquor in the dissolving tank. No doubt most potentially serious flushes are tamed by an efficient smelt shattering system.

The following recommendations seem most feasible to avoid explosions or reduce their intensity and frequency:

1—Provide adequate steam shattering capacity, even for the maximum flushes. Auxiliary steam shatter nozzles controlled from a safe vantage point are an excellent safety measure.

2—Maintain an active bed free of stagnant molten pools of smelt. Proper instruction of operators is important in this connection.

3—Maintain as low a bed as possible consistent with good reduction efficiency, protection of furnace bottom, and freedom from black-outs. The higher the reduction, especially above 95 percent, the more tendency of smelt to explode.

4—Maintain as constant a **total air**-to-liquor ratio as possible to avoid flushes with too high a ratio and jelly or high beds with too low a value. That is, stabilize the bed height as much as possible.

5—Avoid a high excess of unreacted sodium hydroxide in black liquor charged to the furnace.

6—Maintain sulphidity and furnace temperature high enough to avoid viscous smelt.

7—Avoid, if possible, burning liquor at rates which provide insufficient total air for complete combustion.

8—If necessary to operate a furnace above dry solids rating, use of a greater proportion of primary-to-secondary air than the normal 60/40 ratio may result in a drier bed and less violent smelt quenching.

Importance of Shatter Steam

Shatter steam is ideally directed vertically downward from a fish tail orifice about 1/32 inch wide. One hundred psig steam should be furnished. Substantial mechanical loss of smelt through the vent stack, and severe tank wear at the green liquor surface level can occur if under-shot or misdirected shatter steam is employed. Steam is much more effective for smelt shattering than a green liquor duck bill spray. As a matter of fact, many of the newer units employ only steam for this purpose. The cost of steam shattering is believed to be much less than that for operating and maintaining a green liquor circulating pump and lines. Work is currently progressing on an automatic device to regulate the pressure of shatter steam by the rate of smelt flow through the smelt spout. Such a device would conserve steam and also protect against sudden flushes. It will have to respond quickly to change of smelting rate. The serious equipment-damaging explosions are believed to occur when a furnace "unloads" smelt at a rate much greater than steam nozzles can break it up. The slower flow of "jelly-type" explosive smelt is self-limiting and hence less likely to cause serious explosions than large volume flushes which contain so much more quenching energy.

Why Pools Become Violent

Why do pools of smelt become more violent quenching than normal "run-off" type on a pound for pound basis? How does this fact tie in with laboratory quenching experiments? Here is one theory. These pools have longer contact time with reducing gases in the furnace than ordinary smelt, hence their higher reduction. (Reduction in one flush sample from a pool ran 99.8 percent versus 98.8 percent for regular smelt.) Possibly a sizable proportion of the free sodium hydroxide in black liquor or black ash in a furnace zone with highly reducing atmosphere, could fall into a pool of molten smelt without being converted into the usual sodium carbonate. This free sodium hydroxide, once on or below the surface of the pooled smelt would dissolve quickly, furnishing the combination of sensitizer and high reduction which laboratory experiments demonstrated to be necessary for explosive quenching. Swedish analysts found dry black liquor

solids normally contain about 1.6 percent sodium hydroxide. In the ash bed free sodium hydroxide is rapidly converted to sodium carbonate by carbon dioxide. This normal conversion may be retarded when ash lands in a pool and quickly submerges below the surface of the molten smelt. Such a mechanism would suggest that pool smelt becomes more violent the longer it remains in the furnace.

Primary-Secondary Air Ratio

Smooth operation at high burning rate was achieved by increasing the primary-to-secondary air ratio. This trial was of too short a duration to draw conclusions about prolonged operation. However, similar changes in Canadian and Wisconsin plants by J. A. Losier of Combustion Engineering-Superheater, Ltd. were made before these tests. The same beneficial results have been achieved over a long period of time. The increase in primary air at this test load entailed only a slight sacrifice in reduction efficiency. The bed was maintained low and dry. Quenching, as a result, was quiet and easily controlled. As a general estimate, probably the higher the burning rate, the greater the proportion of primary air necessary to keep the bed down to a safe height and still preserve the necessary reduction efficiency. As is well known, combustion efficiency drops off rapidly as burning rate increases, especially above rated capacity. E. H. Kennedy has pointed out (5) that when ordinary Orsat gas analyses are run on recovery units operating at overload ratings, excess air will be very low, and carbon monoxide, 2.5 to 3.0 percent. Under such conditions a combustibles meter showed 6 to 7 percent combustible gas in the flue gases. Orsat analyses alone in this case give an incomplete picture of combustion efficiency and fuel loss to the stack. An increase in the primary-to-secondary air ratio will probably reduce quenching violence. A juggled ratio, however, cannot be expected to remedy reduced combustion efficiency produced by high overload. Combustion efficiency is a function of the total air supply. If the induced-draft fan and coupling capacity of an overloaded unit were increased to provide sufficient total air, both smelt quenching and combustion efficiency might be improved concurrently. Of course, if total air supply were increased, capacity of the recovery unit might be pushed further until some other design factor, slagging location for instance, presented a new limit to increased burning rate.

In the case of changing only the primary-to-secondary air ratio to decrease explosions, management will have to curb the natural tendency to increase liquor charge rate still further, after the new ratio has been established. Otherwise, the same explosive quenching will be restored by overriding the initial beneficial effects. It is predicted that increased quenching violence will be a future trend as more digestors are added to kraft mills without a corresponding increase in recovery unit capacity.

Conclusions

Furnace operating variables are of primary importance for determining whether serious kraft smell dissolving tank explosions occur. Conditions which produce pools of molten smelt in the bed or sudden flushes are believed the most important contributors to violence.

New Idea to Improve Fourdrinier Wires

A recent invention, U. S. Patent No. 2,728,358, by William A. Kools, points the way to improving the characteristics of twill fourdrinier wire used on paper machines.

There are many considerations which enter into the selection of a particular type and mesh of weave in the fourdrinier wire, two of the more important ones being the tendency of the wire to leave a mark upon the paper web, and the useful life of the wire. A majority of the fourdrinier wires used today are twill weave, and although several types of twill have been experimented with from time to time, the one-up-two-down twill has become, for practical purposes, the standard twill for fourdrinier wires. The long crimp or knuckle of the warp wire contacts the rolls, suction boxes, etc. Theoretically, this places a greater length of the warp wires in contact with the rolls, and other conditions being equal, would increase the life of a twill woven wire over that of the plain weave. As a matter of actual fact, however, the methods of weaving twill wire cloth produce in the warp wires of the cloth an unsymmetrical or non-uniform long crimp which is deeper at one end than at the other, and which therefore contacts the rolls and suction boxes of the paper machine along only a portion of its length, called the "heel". (See Figure 1) Accordingly, the principal object of the invention is to provide a method of weaving twill wire cloth which will produce a symmetrical and uniform crimp in the first instance, thereby increasing the life of wires and reducing their paper-marking tendencies, without increasing their cost.

Briefly, the method of invention contemplates a regulation of the relative tensions of the lower warp wires, that is, those which are being formed into the long crimp, during the beat-up of the shute wire into the fell of the cloth. It has been discovered that if, during the beat-up of the shute wire, a greater tension is maintained in that set of lower warp wires which formed the top shed for the insertion of the next previous shute wire, than in the remaining lower warp wires, the "heel" which occurs in the long crimp of twill cloth woven in accordance with prevailing practice, can be eliminated and a symmetrical, uniform bottom crimp or knuckle produced. As a consequence the shute wire also takes on a more nearly symmetrical shape and a more adequate paper support is provided by levelling both warp and shute crimp wires and consequently lowering the crests and raising the valleys for a more nearly perfect forming wire. An increase of wire life in the range of 10 percent can be expected by this new method of weaving.

The inventor, Mr. Kools, has been employed with Kimberly-Clark Corp. in Neenah, Wis. for 28 years and prior to that spent ten years in a wire weaving plant.

FIGURE 1 — Non-uniform heel of typical twill wire.

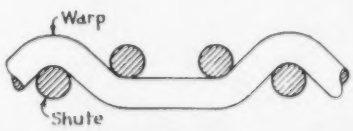

FIGURE 2 — Uniform crimp claimed for new invention.

NEWS OF CONVERTERS OF PAPER AND PAPERBOARD

ROUND PLASTIC-COATED PAPER CONTAINERS manufactured by the Sealright Co., Inc., of Fulton, N. Y., are providing B. J. Price of Chester, Pa., lard manufacturers, with a colorful new package for their product. Convenient and easy-to-spoon from, this plastic-coated container has an easy-on and easy-off cover which makes it ideally suited for re-use as a container for freezing foods and hundreds of other household purposes.

American Box Promotes James, Williams, Tobin

Robert D. James has been appointed director of special food board products sales for American Box Board Co. Mr. James will report to Gordon B. Bonfield, vice president and general manager of the company's Filer City (Mich.), Division, which now has a new bleached kraft food board mill under construction that will be in operation next year.

Mr. James joined American Box Board in 1940 and was formerly sales manager of the company's Grand Rapids mills and folding box plant. Mr. James is a Director of the Folding Paper Box Assn. and served as chairman of its stock box committee for two years. For the time being, Mr. James' activities in special food board package development will require him to remain in the company's general offices in Grand Rapids, Mich.

S. B. Williams, former assistant sales manager, has been promoted to sales manager for the folding box plant. W. R. Tobin, also former assistant sales manager, has been promoted to sales manager for the Grand Rapids mills.

Changes at Dobeckmun

George A. Fendrick has been appointed Cleveland district manager of the packaging division of the Dobeckmun Co., Cleveland, Ohio, converter of plastic films, foils and papers.

Mr. Fendrick, who joined Dobeckmun in 1948, represented the firm in the Indianapolis territory prior to his new assignment. He succeeds Fred E. Bell, who has been appointed Los Angeles district manager of the packaging division.

Dobeckmun also announced assignment to the Cleveland packaging sales office of Richard McNerney, formerly with Thompson Products, Inc. He will assist Mr. Fendrick.

Tennessee Tissue Sold

Tennessee Tissue Mills of Nashville was sold last month by James S. Grigsby to Perry Dale, Sr., owner of Dale Brokerage Co. of that city, at a price reported by the **Nashville Tennesseean** to be about $50,000. Tennessee Tissue Mills is a converting plant producing tissue and towels.

Receives Hoerner Scholarship

Joseph A. Coop of Keokuk, Iowa, has been awarded a full tuition scholarship to Parsons College by Hoerner Boxes, Inc. R. N. Hoerner, president, said the award will amount to $1,600, covering tuition for four years.

NEW BOSS OF BARDEEN MILL—Fred C. Dalley is president of Silvercote Products which has just completed purchase of the Bardeen coating mill of Allied Paper Corp. in Otsego, Mich. Mr. Dalley expects to expand production of Silvercote reflective insulation to a great extent and, at least for the present, have machine time available to enter the specialty coating field.

3M Will Add Converting To Hartford City Operation

Minnesota Mining & Manufacturing Co. will build a new paper converting plant at Hartford City, Ind. The plant, to be built on a 36-acre tract adjoining the Hartford City Paper Co, division of 3M, will process duplicating papers from base stock made in the Hartford City mill. The new plant will have 163,000 square feet of floor space.

Construction will start by August 1 and operations will begin next summer.

New Plant for Dixie Paper Products

The Dixie Paper Products, Inc., 35 Eastern Ave., Essex, Md., which two years ago began producing boxes for the laundry trade, has erected a new plant at 1717 Llewellyn Ave., Baltimore, Md. This is a one-story building containing approximately 7,500 square feet.

Richard T. Henshaw is president of the company.

New Plastic Insert For Corrugated Containers

The Hedwin Corp., 1600 Roland Heights Ave., Baltimore, Md., sheet film plastic products, embossed specialties, etc., is now placing on the market a plastic cube-shaped insert to fit into corrugated and other shipping containers. Its trade name is "Cubitaner." It adapts the containers for shipment of food stuffs, chemicals, etc. Company engineers designed and built the machinery used in the manufacture of this new product. Quite recently the company began producing a line of polyethelene battery acid bottles.

T. W. Winstead is president of the company.

Daley Retires From Highland Manufacturing

Patrick F. Daley, superintendent of the Highland Manufacturing Co. in Holyoke, Mass., has retired at the end of 49 years with the company. In his last official act, Mr. Daley superintended the start-up of a new two-way ruling machine for ruling school tablets.

Walmsley Named Fulton Bag Manager

Peter H. Walmsley has been appointed manager of Fulton Bag and Cotton Mills, New Orleans branch.

Mr. Walmsley had been serving as assistant branch manager and aid to J. M. Elsas, who was branch manager before his election as vice president.

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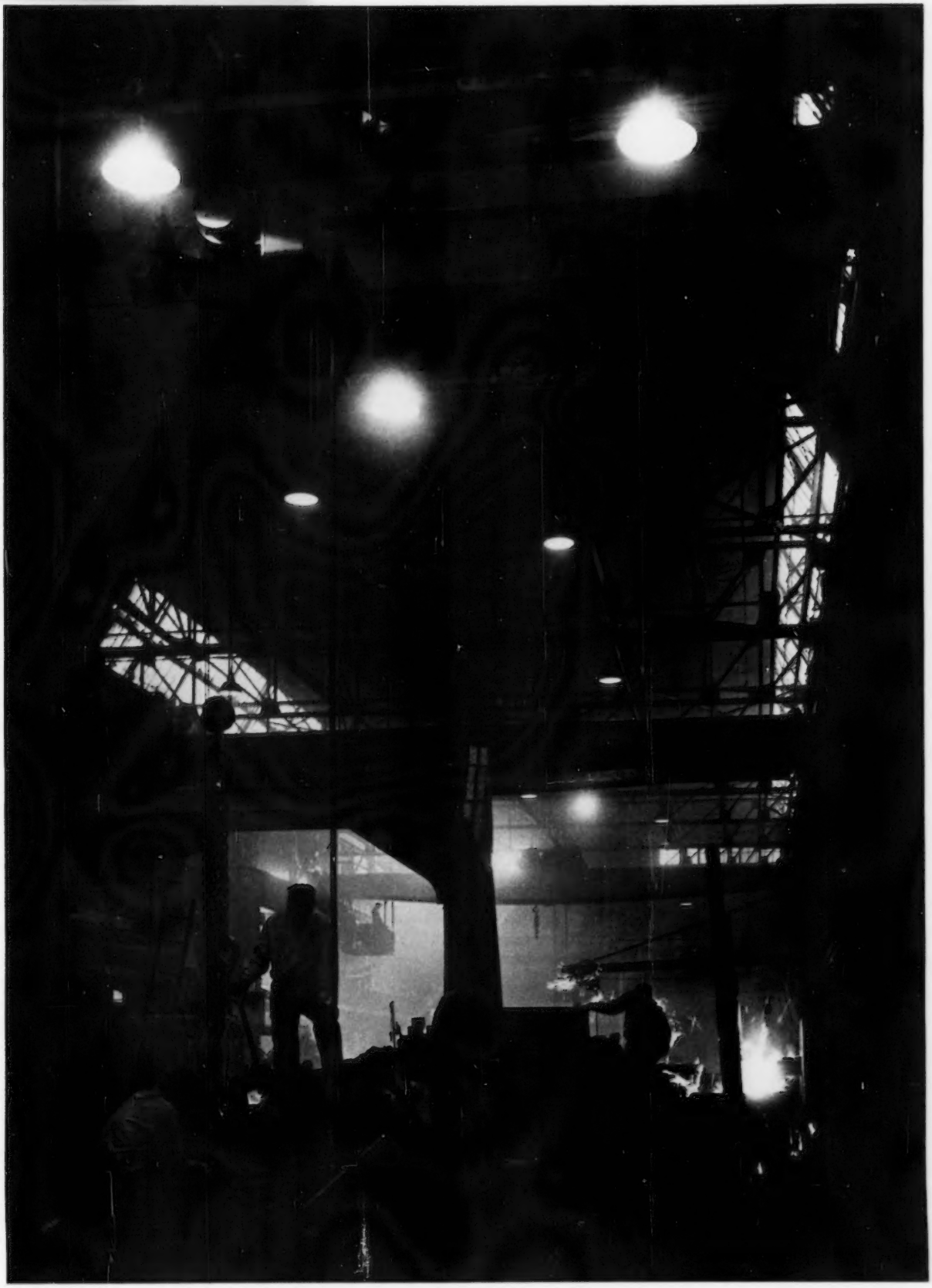

TORKEL KORLING

MAIN BAY . . . *Foundry at Beloit Iron Works, Beloit, Wis.* / *For further details, please turn the page.*

MAIN BAY

In the main foundry bay at Beloit Iron Works, seen in the photograph on the preceding page, the cupola is being tapped into a 15-ton ladle as the day's heat gets under way. Each heat is accompanied by meticulous technological control of sand characteristics and metal analysis. During Beloit's current expansion program this bay will be doubled in size and a separate bay will be built exclusively for casting rolls and dryers. Plans also include the installation of a new core room and expansion of melting, moulding, and sand system equipment.

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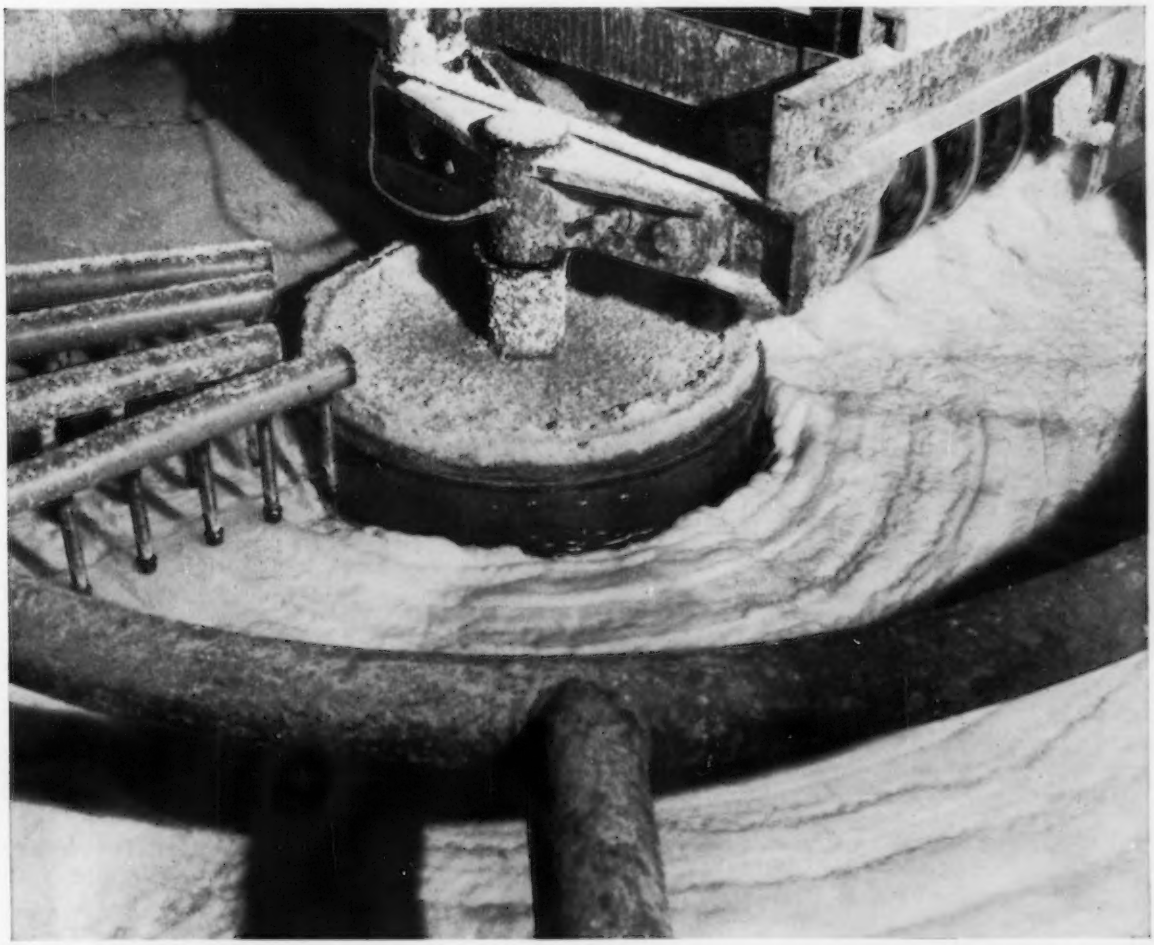
WHEN YOU BUY BELOIT...YOU BUY MORE THAN A MACHINE!

West End doubles capacity of salt cake plant

Acceptance of West End Salt Cake has spread so rapidly that we are enlarging our plant to produce over 100,000 tons a year. Even at this rate we are tapping less than 50% of our natural raw material supply. This output and reserve provides industry with a dependable source of highest quality salt cake to serve its growing needs. Samples, prices and freight schedules will be submitted gladly on request.

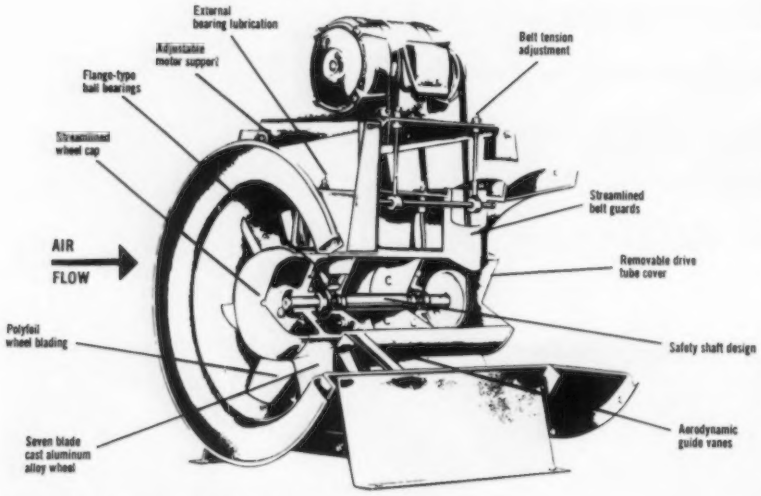


WEST END **West End Chemical Company**

SODA ASH • BORAX • SODIUM SULFATE • SALT CAKE • HYDRATED LIME

EXECUTIVE OFFICES, 1956 WEBSTER, OAKLAND 12, CALIFORNIA • PLANT, WESTEND, CALIFORNIA

NEW EQUIPMENT AND SUPPLIES



New Fans for Industrial Exhaust

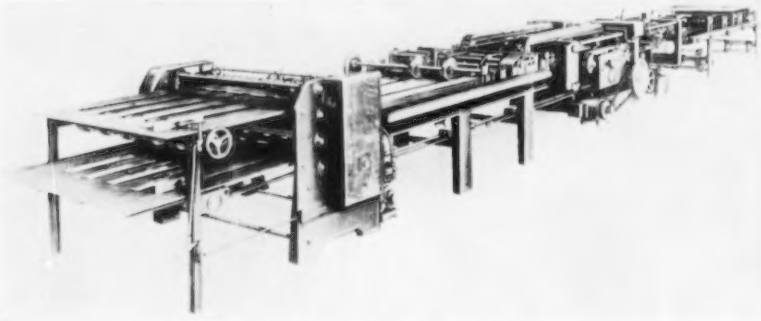
The efficiency of airfoil-type blading has been extended to the fan line of Westinghouse Electric Corp., Pittsburgh 30, Pa.

Designated as Series 300, the design refinements provide better air exhaust performance or process air supply in paper and industrial finishing applications.

Aerodynamic guide vanes, inlet and outlet cones, wheel caps and belt guards in the new units are streamlined to capitalize on the polyfoil-type blading and keep air flow turbulence to a minimum.

A non-overloading horsepower characteristic engineered to reach a peak in the normal operating range, is provided, allowing greater air handling capacity and eliminating need for oversize motors.

The fans are available in three drive arrangements: external V-belt drive, direct drive with motor inside the casing and direct drive with motor outside inlet opening. There are 14 sizes of fans with volumes ranging from 1700 to 100,000 cfm, wheel diameters from 15 to 72 inches and static pressures up to 3¼ inches.



Pasted Bottom Multi-Wall Sacks in One Operation

A new Rawe Bottomer for flush cut and stepped-end tubes up to 6 ply, will produce single or double pasted bottom multi-wall sacks in one operation, according to Potdevin Machine Co., 285 N. Street, Teterboro, N. J. Produced in West Germany, the machine is said to offer a new concept in bottomers. The unit bottoms both ends of the tube simultaneously by passing the tube through the machine sidewise, a departure from conventional methods.

The machine can be used to produce any desired glued paper sacks from tubes for cement, lime, plaster, fertilizer, flour, sugar, chemicals, etc. Valve sleeves or reinforcement strips can be inserted automatically. Flush cut tubes can be converted with the valve insert and a bottom end label (bottom reinforcing sheet). Stepped-end tubes can also be bottomed. The bottomer unit will convert tubes of a wide variety of papers incluidng Kraft, light crepe, asphalt, foil lines, and others.

Work height is convenient. Arrangement of the machine is orderly and open, permitting easy access for servicing. Continuous rotary action of the machine is smooth and effortless. The product consists of three sections: an automatic double feed table with registering section, a bottoming and pasting section, and the delivery section.

Automatic double feed arrangement consists of two staggered tables, one above the other, that can be fed by just one operator. At the machine end of the tables the tubes are registered, and fed over a transfer section to be bottomed. Tubes not properly registered are automatically discarded. A 45 degree score is provided, at the outgoing end of the forwarding section, to assist in proper opening of the tube.

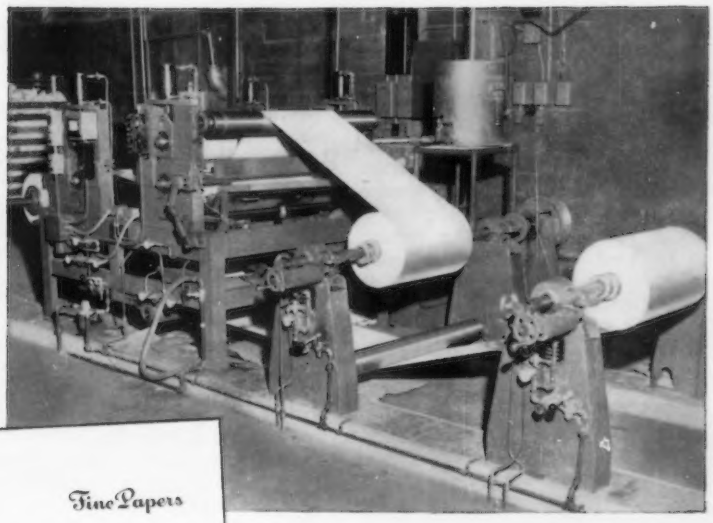
The bottoming Section is composed of two parts, the valve side which is stationery and the bottom side, which is easily adjustable to accommodate tubes of varying lengths. The tube is opened by suction and carried by a gripper to a bottom former. After forming the bottom is pressed and pasted. A valve sleeve or reinforcement strip can be applied to the open bottom. Delivery of the valve sleeves and bottom strips is controlled so that none are delivered if a tube is not in place. Delivery of the finished sack is made onto a set of belts in shingled fashion. The belts press the bottoms. This section is driven by its own motor independent of the bottoming section.

Other features of the bottomer unit are: easy change-over; recirculating adhesive; stepless vari-speed motor; and production Tachograph. Attachments are thumb notch on valve sleeve, printing and reinforcing strips, and valving on both ends of the sacks.

Paint for Water Treatment Of Masonary Available

Two new water-repellent masonry paints are now available from The Upson Co., Lockport, N. Y. Siliphane, a silicone formulation, is a clear protective coating specifically developed for exterior use above grade on all types of masonry. It penetrates the pores, repels capillary water seepage but does not seal the pores and prevent the pores from breathing. Applied either with brush or spray, the paint may be used

Dilts
LAMINATOR IN PRODUCTION AT TOP SPEED A FEW DAYS AFTER DELIVERY



Fox River Paper Corporation — Fine Papers

Appleton, Wisconsin

Mr. R. J. Jacobs,
Manager of Sales & Engineering
Dilts Division
The Black-Clawson Company, Inc.
Fulton, New York

Dear Mr. Jacobs:

The two ply laminator you recently supplied us has been in operation several months and I wish to take this opportunity to express our satisfaction with this piece of equipment.

We were behind schedule with production of laminated grades when this equipment arrived but the assembling from your erection prints was completed in a few days with not one misfit or missing part. We produced saleable paper at the top rated speed within a few hours after the startup.

This Laminator is used to produce two ply Wedding bristols, Thin Visiting Card stock and technical specialties ranging from 100% cotton quality to supersulphite grades. We are especially satisfied with the basic design of this equipment and the thought that went into the controls of sheet tension, nip pressures, etc., that are so important in producing our grades which must be exceedingly uniform for the many varied types of expensive printing processes which our customers perform on these sheets.

May we again express our appreciation of your service to us.

Sincerely yours,

HP Dixson

Vice President in
Charge of Manufacturing

HPDixson
Ers

H. P. Dixson, Vice President
In Charge Of Manufacturing

The Fox River Paper Corporation, Appleton, Wisconsin, was behind schedule in production of laminated grades when their new Dilts two-ply laminator was delivered. Within a few days this machine, which employs the gravure method of adhesive application, was in operation producing uniform quality paper at the top-rated speed.

Through standardization of machine components and application engineering experience, Dilts can select the proper combination of standard units to furnish a laminator to suit your specific production requirements.

Write to Dilts for Specification Sheet No. 104 which shows unitized designs for laminators.

The BLACK-CLAWSON Company

DILTS DIVISION • FULTON, N. Y.

in temperatures as high as 150 degrees F. and as low as 15 degrees F. One gallon covers approximately 150 to 300 square feet and the paint is available in five gallon drums.

Silitex is a cement paint formulated with silicones and metallic compounds which provide a protective and decorative coating for the control of water seepage and dampness. The product can be used either above or below ground and both inside and outside. It is available in white or pastel shades. The first coat covers 60 to 100 sq. ft. and the second coat from 100 to 120 sq. ft. per gallon.

In-Line Flow Rate Meter Offers Easy Reading

A new direct-reading digital indicator designed primarily for use with turbine flowmeters is announced by Fischer & Porter Co., 758 Jacksonville Rd., Hatboro, Penn. The unit offers in-line, illuminated digital indication. Inch-high numbers, engraved in clear plastic and edge-illuminated, offer unambiguous visual readout from up to 25 ft. Only the relevant number appears on the scale.

Direct reading of flow, with manual correction for specific gravity, is available as an optional feature. Conversion into the desired flow units and correction for the calibration factor of the primary are accomplished electrically. No computation by the operator is required.

Integrated flow rate is provided. Integration is performed during the sampling interval and the indication is corrected immediately following each sampling period. A frequency octupler provides information at many times the output frequency of the primary. This feature allows a high degree of accuracy with high sampling rates and effects continuous indication.

Frequency-controlled range switching is automatic. Operation is virtually instantaneous even at maximum acceleration, a factor which eliminates the danger of overranging encountered with mechanically operated limit switches.

Resistance and capacitance elements control frequency of a stable oscillator. Frequency is adjusted to accommodate different primaries or conversion to other flow units.

Outstanding Mill Designer Passes Away

Anne G. Toomey, secretary of the Salesmen's Assn. of the Paper Industry, has written the following sketch of Hardy Smith Ferguson's career. She worked with him in his New York office for the last 25 years of his active career. His death was reported in last week's issue of Paper Trade JOURNAL.

Mr. Ferguson was born in Chelsea, Mass. on November 3, 1868. He entered Dartmouth College after completing his high school education in three years, and received his BS from Dartmouth in 1889; and two years later his C.E Degree from the Thayer School of Civil Engineering at that college.

Although his intention had been to enter the field of hydraulic and sanitary engineering, he was offered a post with D.H. and A. B. Tower as assistant engineer. The Tower organization was then the only true pulp and paper engineering organization in existence, and is still remembered for its design and construction of the famous Holyoke mills.

Mr. Ferguson was appointed resident engineer for the supervision of construction of the newsprint paper mill of Glens Falls Paper Co. then being built at Glens Falls, N. Y. Following which he served as resident engineer of the Rumford Falls Paper Co. mills, and the sulphite mill of the Rumford Sulphite Co., built at Rumford, Maine during 1892, 1893 and 1894.

Mr. Ferguson opened his own office for the practice of engineering and in 1898 he was selected by Garret Schenck, president of the Great Northern Paper Co. (whom had he met with Mr. Schenck was general manager at Rumford Falls) to design and supervise the construction of the newsprint mill of the Great Northern at Millinocket, Maine. The design of this mill has stood up through the years, and all improvements made since the mill was completed in 1899 fitted perfectly into the original design. Mr. Ferguson remained with Great Northern as chief engineer until 1911 when he opened his offices at 200 Fifth Avenue in New York City where he remained until he closed his business in March of 1950 —39 years later.

One of his best known hydraulic designs is the Ripogenus Dam at Ripogenus, Maine, which he designed for Great Northern.

His clients included some of the greatest pulp, paper and hydro-electric companies in the world. There are mills designed by Hardy Ferguson over most of North America: in Canada, where one of his last designs was the Fraser

H. S. Ferguson

Paper Ltd. pulp mill at Newcastle; in the Far West at Everett and Tacoma; in the South—where he built the paper mill for the Crossett Lumber Mills at Crossett, Ark., and the mill of the Hollingsworth & Whitney Co. at Mobile, Ala., and the Florida Pulp and Paper Co. mill in Florida; in the Midwest, for the Minnesota and Ontario Paper Co. among others, and in New England—for the Brown Co., the Rumford Falls Power Co., the Oxford Paper Co., to mention just a few.

In an interview at the time he was awarded the TAPPI Medal (February 1949), Mr. Ferguson was asked what he considered the most important development in the industry from 1891 to that time, and his reply was that he felt, unquestionably, it was the improvement in the design and quality of the construction of pulp and papermaking machinery. Much credit has been given to Mr. Ferguson for the increase in paper machine speeds, and it is doubtless true that his mill design endoubtless true that his mill design encouraged higher speed machines.

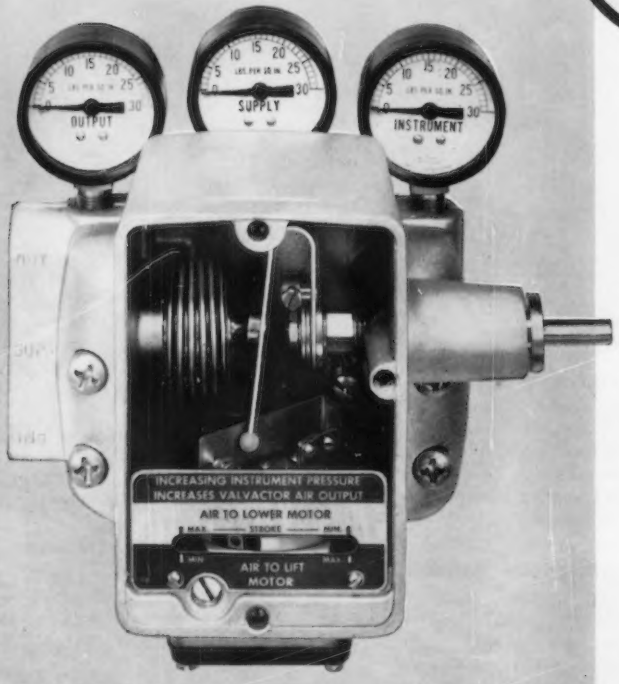
Mr. Ferguson remained the active head of his consulting business until he closed his office in 1950, and while living in Maine in semi-retirement, travelled to the South on many assignments for paper manufacturing companies, and up to a few days before his death was actively consulted on engineering problems.

He died July 6, at his Cape Elizabeth, Maine, Home.

NEW!

MOST UNIVERSALLY ADAPTABLE VALVE POSITIONER ON THE MARKET!

...the Foxboro Type C VERNIER VALVACTOR*



The Type C Valvactor's distinctive motion-balance principle of stem positioning eliminates loading effects of heavy fixed-stroke actuating springs. Note compactness — the simplest mechanical design of any valve positioner.

**Trademark of a precision valve positioner made by The Foxboro Co.*

Unique Flexibility Easily reversible in seconds. Sequencing by two simple adjustments.

Super Response Full air-pressure output to diaphragm motor on signal air-pressure change as small as ½ of 1% of signal span.

Extra Speed New, high capacity relay provides high speed positioning action.

Positive Positioning Direct, motion-balance feed-back assures instantaneous, pin-point positioning.

Now there's a positive-action, super-precision valve positioner that you can easily adapt to *any* diaphragm motor application — without exchange of parts! It's the Foxboro Type C Vernier Valvactor with unique motion-feedback.

The Type C Valvactor has a master setting disc which provides easy change of action as required by the control system, as well as easy reversal of Valvactor action for air-to-open or air-to-close control valves. Adjusting for limited stem travel is equally simple ... sequencing of several valves is a cinch!

The Valvactor is the ideal solution to such problems as stem friction, plug friction, valve motor and transmission line lag, and extreme process line pressure changes. And it requires practically no maintenance! Available with 3-gauge and by-pass manifold, or plain manifold. Write for full details. **The Foxboro Company, 237 Norfolk St., Foxboro, Mass., U.S.A.**

FOXBORO
REG. U.S. PAT. OFF.
VALVE POSITIONERS

NEWS OF ASSOCIATIONS

Plan of Eleventh Engineering Conference

The Eleventh Engineering Conference of TAPPI will be held at the Sheraton-Plaza Hotel, Boston, Mass., October 8-11, 1956.

October 8—Economics Session

Jo. R. Persons, Champion Paper and Fibre Co., Chairman.

1—"Purposes and Aims of the Economics Committee," by Jo. R. Persons, Champion Paper and Fibre Co.

2—"Team-work in Business," by Tom Patterson, Armstrong Cork Co.

Engineering Research and Machine Design Session

R. G. Quinn, Johns-Mansville Corp., Chairman.

1—"Soil Mechanics," by E. A. Dockstader, Stone and Webster Co.

2—"Rigid Koroseal," by James Flounders, B. F. Goodrich Co.

3—"Construction of Wire Pits," Beloit Iron Works.

4—"Preliminary Report by Fluid Mechanics Sub-Committee," by N. Shoumatoff, West Virginia Pulp & Paper Co.

Process Instrumentation and Control Session

Marvin F. Gade, Kimberly Clark Corp., Chairman.

1—"Instrument Tension Control on Paper and Board Machines," by W. Mikelson, General Electric Co.

2—"Instrumentation for the Automatic Start-up of the Wet End of a Paper Machine," by Garnet Eastwood, Spruce Falls Pulp & Paper Co., and Marvin F. Gade, Kimberly Clark Corp.

Steam and Power Session

J. Mailhos, National Container Co., Chairman.

1—"Steam-Electric Balance in a Pulp and Paper Mill," by H. R. Arnold, Riegel Carolina Corp.

2—"A Fundamental Approach to Paper Mill Steam Power Plant Modernization," by J. R. Haug, Jackson and Moreland, Const. Engr., Boston, Mass.

Engineering Research and Machine Design Session

N. Shoumatoff, West Virginia Pulp & Paper Corp., Chairman.

1—"Application of Hydraulic Models to Flows in Pulp Stock," by W. D. Baines, National Research Council Canada.

2—"The Flow Characteristics of Dilute Fiber Suspensions," by A. A. Robertson and S. G. Mason, Pulp and Paper Research Institute of Canada.

3—"Pertinent Factors in Flow Research on Dilute Fiber Suspension," by A. T. Ippen, J. W. Daily, and G. Bugliarello, M.I.T.

October 9—Industrial Engineering and Materials Handling Session

J. M. McBrayne, Union Bag and Paper Co., Chairman.

1—"Layout Considerations for a Paper Warehouse," by Graham Whitehurst, Zellerbach Paper Co., Los Angeles, Calif.

2—"Micro Motion and Memo Motion," by C. H. Reagan, Union Bag and Paper Co., and H. F. Goodwin, M.I.T.

Hydraulic Session

K. J. Mackenzie, Eastman Kodak Co., Rochester, N. Y., Chairman.

1—"The Flow Properties of Paper Pulp Stock," by Dr. R. E. Durst, University of Maine.

Sanitary Engineering Session

G. M. Griffith, West Virginia Pulp and Paper Co., Chairman.

1—"What is Stream Pollution?"

2—"Management's Viewpoint of Pollution Abatement"

3—"The Engineering Viewpoint of Pollution Abatement"

Mill Maintenance and Materials Session

L. L. Mrachek, Mead Corp., Kingsport, Tenn., Chairman.

1—"Mastics for Corrosion Control," by W. W. Henderson, W. W. Henderson & Sons.

2—"Organizations and Functions of Mill Lubrication," by H. B. Berrong, Socony-Mobil Oil Co.

Mill Maintenance and Materials Discussion Session.

1—"Standardization of Chemical Pumps," by M. L. Murdock, Allis Chalmers, and D. Brand, Monsanto Chemical Co., St. Louis, Mo.

October 10 — Electrical Engineering Session

M. J. Osborne, Bowaters Southern Corp., Chairman.

1—"A.C. Motor Duty Cycle," by R. W. Foster, Champion Paper & Fibre Co.

2—"Fundamentals of Regulator Performance, Including a Discussion of Transient and Steady State," by G. E. Shaad, General Electric Co.

Chemical Engineering Session

Dr. L. C. Jenness, University of Maine, Chairman.

1—"Economics of Thermal Compression Evaporation," by F. O. White, R. V. Kleinschmidt, and E. C. Bowen, The Bowen Corp.

Drying and Ventilating Session

E. H. Olmstead, The Eaton Dikeman Co., Chairman.

1—"Practical Design Considerations Affecting Paper Machine Drying and Drainage Systems," by Horace P. Fishwick, Mason-Neilan, Div. of Worthington Corp.

2—"Using Liquid Heat Transfer Media," by R. Casper Swaney, S. Morgan Smith.

Corrosion Session

S. J. Baisch, Thilmany Pulp and Paper Co., Chairman.

1—"Experiences with Cathodic Protection of Digesters," by E. W. Keith, Penobscot Chemical Fibre Co., Great Works, Maine, and H. M. Canavan, Mutual Boiler & Machinery Insurance Co.

2—"Electrochemical Corrosion Studies on Carbon Steel in Alkaline Pulping Liquors," by Dr. W. A. Mueller, Pulp and Paper Research Institute of Canada.

3—"Analysis of Corrosion Questionnaire Returns," by F. E. Hutton, Babcock & Wilcox Co., and S. J. Baisch, Thilmany Pulp & Paper Co.

Electrical Engineering Discussion Session

1—"Location and Causes of Motor Failures," by I. Witham (Panel Chairman), Byron Weston Co.

Corrosion Discussion Session

1—"Second Summary of Alkaline Digester Corrosion Regional Activity," by C. W. Smith, Crossett Paper Mills.

2—"Corrosion Questionnaire — Future Planning," by F. E. Hutton, Babcock & Wilcox Co.

October 11—Plant Tours

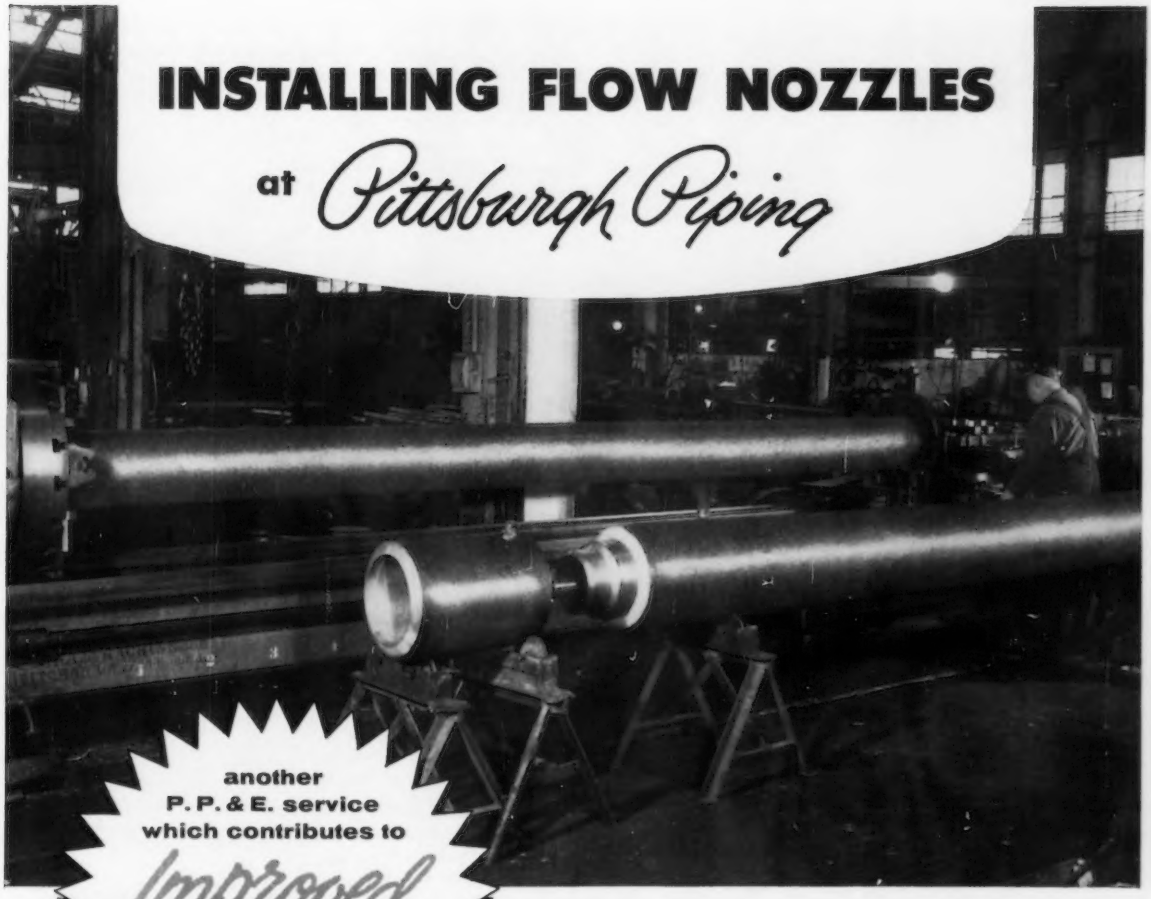
TAPPI Testing Conference September 11-13

The Seventh Annual TAPPI Testing Conference will be held at the Hotel Loraine, Madison, Wis., September 11-13.

One of the outstanding points of the conference will be the official luncheon

INSTALLING FLOW NOZZLES

at Pittsburgh Piping



another
P. P. & E. service
which contributes to

Improved

**HIGH-TEMPERATURE
HIGH-PRESSURE
PIPING**

Pittsburgh Piping's precision installation of flow nozzles in high-pressure piping is the result of extremely skillful machining, fitting, and welding by experienced craftsmen. This is another example of advanced techniques — available at Pittsburgh Piping — which provide greater safety, higher efficiency and longer life from high-pressure, high-temperature piping.

Precision fitted flow nozzles; largest shown is for 16" main steam line; 4" and 6" sizes in foreground are for boiler feed lines.

PRODUCTS AND SERVICES

Carbon Steel Piping	Forged Piping Materials
Cast Iron Fittings	Headers
Cast Steel Fittings	Manifolds
Chrome-Moly Piping	Pipe Bends
Copper Piping	Stainless Steel Piping
Corrugated Piping	Van Stoning
Creased Bends	Welded Assemblies
Expansion Bends	Welded Stainless Steel Tubing
Flanges	Welding Fittings

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158 49th Street — Pittsburgh, Penna.
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Boston	10 High Street
Chicago	Peoples Gas Building
Cleveland	Public Square Building
Hollywood	1828 North Alexandria Ave.
New Orleans	P. O. Box 74
New York	Woolworth Building
Syracuse	113 So. Salina Street
Toronto	68 Yonge Street

PP-19

held on September 13. The principal speaker will be J. Alfred Hall, Director, Forest Products Laboratory. Mr. Hall will speak on the future and direction of research at the Forest Products Laboratory. Following Mr. Hall's talk there will be a trip through the laboratory. A number of exhibits will be shown at this time.

A number of papers will be presented at general sessions which will be presented on Tuesday morning and Wednesday afternoon. In addition to these there will be individual committee meetings of special interest to those attending the conference.

The 1956 Testing Conference is headed by General Chairman E. E. Stephenson, Sutherland Paper Co.; Program Chairman W. O. Kroeschell, Michigan Carton Co.; Local Arrangements Chairman J. C. Killebrew, Forest Products Laboratory; and Publicity Chairman G. J. Gill, Penick & Ford. Testing Division Chairman is Paul W. Bartholomew and Vice-Chairman is C. E. Brandon.

Eleventh Plastics-Paper Conference

The Eleventh Plastics Paper Conference of the Technical Association of the Pulp and Paper Industry will be held at The Institute of Paper Chemistry, Appleton, Wis., October 3-4, 1956.

J. C. Pullman, American Cyanamid Co., New York, N. Y., is chairman of the sponsoring TAPPI Plastics Committee. R. Reiter, National Starch Products, Inc., Plainfield, N. J., is in charge of the technical program, T. A. Howells, The Institute of Paper Chemistry, Appleton, Wis., is local arrangements chairman, and W. L. Hardy, Foster D. Snell, Inc., New York, N. Y. is publicity chairman for the conference.

A partial tentative program for the meeting is given below.

1. "Polyethylene Extrusion Coatings —Adhesion and Sealability Studies", H. A. Arbit, Bakelite Co., Bound Brook, N. J.
2. "New Developments in Extrusion Coating with Polyethylene", E. E. Griesser, Bakelite Co., Bound Brook, N. J.
3. "The Use of Emulsifier—Free Latices for the Internal Treatment of Paper", V. T. Stannett, College of Forestry, Syracuse, N. Y.
4. "The Use of Polyvinyl Acetate in Beater Addition", R. W. Reiter, National Starch Products, Inc., Plainfield, N. J.
5. "Use of Stable Phenols for Evaluating the Resin—Saturating Properties of Paper", Charles Seiler, General Electric Co., Coshocton, Ohio.
6. "A Preliminary Investigation of Paper-Laminate Property Relationships", G. R. Shaw (presented by H. A. Spencer, Knowlton Bros., Watertown, N. Y.)
7. "A Technique of Evaluating Surface Roughness and Permeability of Paper for Saturating and Coating", J. A. Van den Akker, IPI, Appleton, Wis.

F. L. Grayson

Joins APPA Staff

Addition of Frederic L. Grayson to the staff of the American Paper and Pulp Assn. has been announced by E. W. Tinker, Executive Secretary.

Employment of Mr. Grayson will help to expand the statistical and economic services of the Association. In addition, the Association will now be able to provide more complete service on foreign market reporting and other special industry studies.

Mr. Grayson comes to APPA from Peter J. Schweitzer, Inc., where he served on the quality control staff of their Lee, Massachusetts, mills. He is a graduate of Yale University with a B.A. degree in economics and a Masters degree in forestry. He completed his studies at Yale after serving with the Navy in the Pacific during World War II.

Prior to his employment with Peter J. Schweitzer, Inc., Mr. Grayson worked with the U. S. Forest Service on the Olympic National Forest in Washington State.

Corrugated Program Set For St. Louis Conference

The Sixth TAPPI Corrugated Containers Conference will convene October 17 and 18 at Hotel Statler, St. Louis. Early reservations can be made with the hotel.

The technical program starts October 17 on the theme, "Multi-Color Printing of Corrugated Containers." W. P. Blamire, American Boxboard, is chairman-moderator of this session, with formal papers presented as follows:

1—"Printer-Slotters for Multi-Color Printing of Corrugated Board" by a representative of F. X. Hooper.

2—"Printing Dies for Multi-Color Printing of Corrugated Board" by a speaker from Jos. H. Matthews & Co.

3—"Printing Inks for Multi-Color Printing of Corrugated Board" by Robert Reid, General Printing Ink Div. of Sun Chemical.

4—"Multi-Color Printing of Corrugated Board" by a representative of Tinde & Dauch, Toronto, Canada.

The October 17 afternoon session will be on "Planning and Controlling Corrugated Production," with L. K. BOurnett, Ohio Boxboard, chairman-moderator, and the following presentations:

1—"Scheduling for Customer Satisfaction and Customer Efficiency," by Robert Rabatsky, Hankins Container.

2—"Minimizing Loss of Efficiency When Running Special Order Business," by J. W. Meinhardt, Gaylord Container.

3—"Training and Safety as An Aid to More Efficient Production," by E. J. Bartlett, Union Bag.

October 18 will be occupied with tours to Gaylord Container in St. Louis; Alton Box Board, Alton, Ill.; Lunch at Le Chateau Restaurant, St. Louis; and Grant's Farm, home of Mr. and Mrs. A. A. Busch.

D. Santmyer, E. I. du Pont de Nemours and Co., Inc., St. Louis, and J. F. Butterworth, Socony-Mobil Oil Co., St. Louis, are co-chairmen of registration.

Receive TAPPI Awards

Three students in the paper engineering department at Lowell Technological Institute presented technical papers at the recent meeting of the New England section of TAPPI held at Magnolia. Two received New England TAPPI junior awards.

First prize winner was John M. Haigh of North Andover, whose paper was entitled "A Method for Repulping Plastic-Coated Papers," and second prize went to Pierre J. Jacques of Lowell for his paper on "Preparation of an Emulsion of Soluble Nylon Suitable for Paper Coating." Nicholas C. Dadoly of Dracut received honorable mention for his paper on "Ply Adhesion of Cylinder Board."

Robert E. Grove of Lowell was awarded the annual Helen U. Kiely award commemorating the retired technical director of the American Writing Paper Corp. in Holyoke who was extremely active in promoting the role of the technical men in the paper industry. This award is made by TAPPI, in recognition of Miss Kiely's distinguished service to the paper industry, to a member of the LTI senior class in paper engineering selected by his classmates as having outstanding qualities of merit.

Industrial Bag and Cover Assn. Elections

Harry M. Hanson, president of Kennedy Car Liner & Bag Co., Inc., was unanimously elected President and Alvin A. Abramson, treasurer of Central States Paper and Bag Co., Inc., was elected vice-President of the Industrial Bag and Cover Assn. at the group's sixth annual meeting, June 18-June 22 at the Cloister, Sea Island, Ga.

Elected to the Association's Board of Directors were: Edward H. Look, Portco Corp.; Arnold L. Mills, Propack, Inc.; A. L. Park, Bemis Bro. Bag Co.; M. P. Williams, Cadillac Products, Inc. and Stanley G. Yount, Southland Paper Converting Co.

Philip O. Deitsch, who has been the Association's Administrative Officer since its inception, was again retained by the group.

Guest speaker at the meeting was R. M. Garratt, who represented the National Lumber Manufacturers Assn. and the Timber Engineering Co. Mr. Garratt spoke on his organization's research program relating to the packaging of lumber and building materials.

The Association also approved the administrative Officer's recommendation that formal application be made to the Federal Trade Commission for authorization to establish an Industry Trade Practice Committee for the Industrial Bag and Cover Industry.

L. A. Warmuth

Heads Ritchie Co.

Leo A. Warmuth has been named president of W. C. Ritchie and Co., Chicago, package manufacturing subsidiary of Stone Container Corp. Mr. Warmuth will serve as chief executive officer of the Ritchie operation, reporting to Marvin N. Stone, executive vice president of the parent firm.

Mr. Warmuth succeeds Albert S. Daniel as Ritchie president.

The company makes folding cartons, set-up boxes, paper cans and tubes, and cosmetic and other special packages.

FIVE WAYS BETTER

ELECTRICAL RIGID CONDUIT, made by Alcoa, is better in five important ways . . .

1. Aluminum rigid conduit resists corrosion. It resists all kinds of attack, even in contaminated areas. Rarely needs painting, yet it outlasts all others . . . saves for the life of the installation.

2. It's nonsparking—you can safely use Alcoa® Aluminum Conduit in hazardous locations. And it bears the Underwriters' Laboratory approval.

3. It's nonmagnetic. This means less voltage drop. You can run longer lines or use smaller wires. You can separate conductors, regardless of load.

4. It weighs less. You save on installation, handling, storage, transportation.

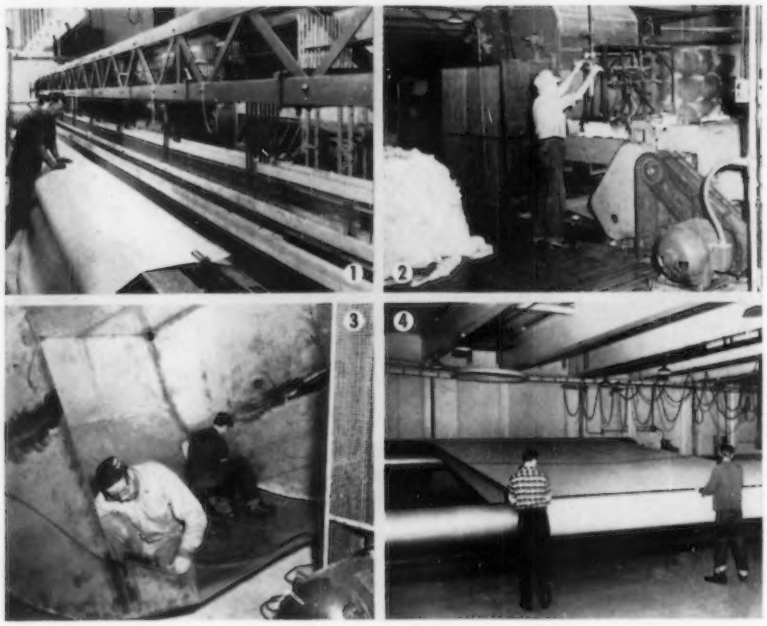
5. It's good looking. The naturally bright finish of Alcoa Aluminum lasts . . . for there is no coating to peel or blister. You can use this conduit wherever good appearance is important.

Get the full story on Alcoa Aluminum Electrical Rigid Conduit from any Alcoa sales office. Or write Aluminum Company of America, 2323-G Alcoa Bldg., Pittsburgh 19, Pa.

Your Guide to the Best in Aluminum Value

THE ALCOA HOUR
TELEVISION'S FINEST LIVE DRAMA
ALTERNATE SUNDAY EVENINGS

NEWS OF SUPPLIERS



APPLETON MODERNIZES — 1) 600-inch loom. 2) Picker-feeder. 3) Stainless steel washer. 4) Naper and Dryer.

APPLETON WOOLEN MILLS has invested $70,000 in a Crompton & Knowles 600-inch loom which now permits the company to furnish paper mills with felts up to 300 inches in width. It also has installed a Bramwell picker-feeder which pre-carding operation assures a more accurate and uniform blend of wool and synthetic fibers; a 10-ft. stainless steel washer to accommodate felts of increased size and weight; and a new 300-in. David Gessner naper and 320-in. Beloit dryer.

Other plant modernization projects are currently under way at Appleton Woolen Mills and will be announced upon completion.

HOOKER ELECTROCHEMICAL CO. has announced that John K. Gallagher has been appointed district sales manager for California; Neil M. Barber is now Philadelphia district sales manager; and H. McIntosh Beatty, Jr., has been appointed technical service representative at Tacoma, Wash.

ATLAS POWDER CO. has appointed Dixon C. Van Winkle to the newly-created post of field sales manager for its chemicals division. Mr. Van Winkle, who has been manager of the firm's New York chemicals sales office, now will make his headquarters in the Wilmington General Offices.

BAUER BROS. CO. has acquired approximately 32 acres of land, 4 miles northwest of downtown Springfield, Ohio, for future expansion.

Plans call for the removal of plate facilities and general machinery division, as well as laboratory and general office facilities to this location over the next five years, providing the general economic and operating conditions conform to the pattern of the past years.

Erection of the first unit of 35,000 sq. ft. on the new site is planned for 1956. The project, to cost about $500,000 including equipment, is to be a completely new Grinding Plate Division designed for complete electric alloy metals preparation and finishing equipment. Capacity will be more than doubled.

It is expected the Bauer Bros. Canadian plant will be functioning during 1956.

DORR-OLIVER INC. has approved plans for a $900,000 expansion program for its manufacturing plant at Hazleton, Pa. Greatly enlarged fabricating facilities will enable Dorr-Oliver to produce, at its own manufacturing plant, structural parts which have been sub-contracted to outside firms in the past. These new facilities will be in operation by the end of the year.

HARRIS-SEYBOLD CO. recently opened a sales and service office. The new office, part of the Philadelphia District, is located at 511 North Charles St., Baltimore 1, Md. It is staffed by John Heilmann and Brendan O'Donnell, sales representatives, and service representative Mickey Moore.

GENERAL ELECTRIC CO. has named William E. Schroeder as a turbine specialist for the southwestern district with the home office in Dallas, Texas.

WALWORTH CO. has elected Robert Graves Hess as executive vice president. Mr. Hess recently resigned as executive vice president of Pesco Products Div., Borg-Warner Corp. to accept the Walworth position.

ALLIS-CHALMERS MFG. CO. has assigned Rudolf Krosche as a sales representative for the A-C Industries Group in Akron, Ohio. A 1954 mechanical engineering graduate of Stevens Institute of Technology, Mr. Krosche recently completed Allis-Chalmers' training course for graduate engineers.

Also, Henry V. Gurney and Jack L. Nickerson have been named to the Newark (N. J.) and Augusta (Me.) districts, respectively, of Allis-Chalmers Industries Group as sales representatives.

Mr. Gurney is a mechanical engineering graduate of Newark College of Engineering. Mr. Nickerson received his bachelor of science degree in engineering physics from the University of Maine.

In another appointment, Irwin W. Best, Jr., has been named a sales representative in the Seattle district of the A-C Industries Group.

W. B. Fitzmaurice

TRACERLAB, INC., has appointed William B. Fitzmaurice, 90 Jason St., Arlington, Mass., Industrial Division sales representative in the New England area.

R. K. Strapp

M. M. Calvert

CARTHAGE MACHINE CO. has appointed Richard K. Strapp to its sales staff. Mr. Strapp, who will cover Canada and northeastern United States, gained his first pulp and paper mill experience with Bowaters at Corner Brook, Newfoundland. Later he joined the staff of the Pulp and Paper Research Institute of Canada at Montreal, working with chemical pulping of woods and agricultural residues.

W. E. GREENE CORP., sales agents for Stowe-Woodward, Inc. and Lodding Engineering Corp. announce the appointment of Maury M. Calvert to represent them in the states of Miss'ssippi, Louisiana, Texas and Arkansas.

RAYBESTOS-MANHATTAN, INC. has created a new Eastern Sales Region, with a regional manager, for the Manhattan Rubber Div., Passaic, N. J. This new region combines the New York, Philadelphia and North Jersey Districts. R. F. Teeling is manager. Headquarters for the new offices are at 500 Fifth Ave., New York, N. Y.

PRIOR CHEMICAL CORP. has elected Gösta Englund and Frank J. Hickey as vice-presidents of the corporation. Both have been division sales managers.

ROOTS-CONNERSVILLE BLOWER, Division of Dresser Industries, Inc., Connersville, Ind., has appointed Henry A. Jacker as Manager of Foreign Operations. After August 15, Mr. Jacker will be located in Roots-Connersville's Foreign Operations Office at 122 E. 42nd St., New York City. Mr. Jacker will assume responsibility for the organization of Roots-Connersville's foreign sales representation and for the coordination of possible production facilities in Western Europe, Central and South America, and in other overseas areas. The sale of Roots-Connersville products in Canada is handled by a subsidiary company, Roots-Connersville Blower (Canada) Ltd., located in Toronto.

DAY JUMBO MIXERS... meet every requirement imposed by heavy loads. For instance, the standard-duty DAY Jumbo Mixer is equipped with two roller bearings mounted on heavy fabricated supports. Heavy-duty units have an extra outboard bearing to eliminate cantilever action or drift. Air- and grease-seal stuffing boxes and 3-piece, dust-type covers are standard equipment. Agitators have a laminated outer ribbon, continuous welded, ground smooth, with outer ribbon having a relieved trailing edge to eliminate rubbing action. Tanks can be equipped with heating or cooling jackets for 40, 60 or 80 psi. Available in 600- to 3850-gallon capacities. For complete information write for Bulletin 800.

in mixing equipment FOUNDED 1887 DAY *means longer life span*

THE J. H. DAY COMPANY

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Quality equipment for baking, paint and varnish, printing ink, chemical, rubber, pharmaceutical, cosmetics, paper and pulp, explosives, food, ceramics, candy, soap, sugar and milk products.

Eastern Canada: Brantford Oven & Rack Co., Ltd., Brantford, Ontario

Mexico: T. de la Pena e Hijos, S. A., Nazas 45-A, Mexico 5—D. F.

PRICES OF FIBERS

MARKET WOOD PULP

THIRD QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

	Delivered Basis		Varying Freight Allowances†		
	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	$$83.00/ 86.00§	$90.00/ —	$$77.50/ 90.00
Kraft, Blchd.	152.00/155.00	155.00/ —	$155.00/ —		$155.00/ —
Kraft, Blchd. Hdwd.	150.00/ —		$137.50/ —		
Kraft, Semi-bleached	140.00/145.00	135.00/140.00	$137.50/140.00§	*140.00/ —	
Kraft, Unbl.	117.50/125.00	120.00/130.00	†125.00/130.00	125.00/145.00	
Sulphite, Blchd.	150.00/ —	150.00/ —	*150.00/ —	*150.00/ —	145.00/147.50†
Sulphite, Unblchd.	130.00/ —	130.00/ —	†130.50/ —	*130.00/ —	
Sulphite, Unb'l. Gl'sn		129.00/ —	†129.00/ —		
Soda, Blchd.	142.50/145.00	145.00/ —			

‡ F.o.b. Shipping Point. § On Dock Atlantic Ports. * Freight allowed.

NEW YORK RAG MARKET

New Domestic Cotton Cuttings

Delivered Mill Basis
PRICES NOMINAL

	Per 100 lbs.
No. 1 White Shirts	$15.00/$15.50
No. 1 Unblchd. Muslins	17.00/ 17.75
Blchd. & Unblchd. Underwears	17.00/ 18.00
No. 1 Light Silesias	7.25/ 7.75
No. 1 Light Blue Overalls	8.50/ 9.00
Percales	7.00/ 7.50
No. 1 Light Prints	5.50/ 6.00
Suntan Khakis	6.00/ 6.50
Cottonades	3.50/ 4.00
No. 1 Washables	3.00/ 3.50

Old Domestic Cotton Rags

(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$3.00/$3.50
Cotton Pants & Overalls	2.25/ 2.50
Thirds and Blues, Repacked	1.75/ 2.00
No. 2 Roofing	21.00/22.00

COTTON LINTERS

Memphis Market

F.o.b. Oilmills

	July 3 Per 100 lbs.
Grade 1	n.a.
2	$9.10/ $7.70
3	7.00/ 5.80
4	5.25/ 4.20
5	3.75/ 3.05
6	3.00/ 2.75
7	2.75/ —

(3 & 4: 1st cut—felting)

*Based on 73% cellulose.

Bagging

(Prices to Dealers, F.o.b. N. Y.)

	Per 100 lbs.
Foreign Gunny	$5.50/$6.00
Foreign Scrap Burlap	5.50/ 6.00
Heavy Wool Tares	6.50/ —
Foreign Manila Rope	6.25/ 6.50
Domestic Manila Rope	7.75/ 8.25
Domestic No. 1 Sisal Strings	4.25/ 4.50

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point - Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	July 16	July 16	July 16	July 16
No. 1 Mixed Paper	11.00/ —	14.00/ —	10.00/ —	14.00/ —
No. 1 News	15.00/ 16.00	17.00/ —	14.00/ —	14.00/ —
Overissue News (Lg. size)	17.00/ 18.00	17.00/ 19.00	19.00/ —	14.00/ —
Mill Wrappers	17.00/ 20.00	17.00/ —	13.00/ —	14.00/ —
Old Corrugated Containers	24.00/ 25.00	24.00/ 25.00	23.00/ —	19.00/ —
Super Resorted Kraft Paper	46.00/ 48.00	45.00/ 50.00	45.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts	40.00/ 42.00	45.00/ 47.00	45.00/ —	35.00/ 40.00
(Semi-chem. medium)	45.00/ 52.50	47.00/ 52.50	47.50/ 52.50	— / —
New 100% Kraft Corr. Cuts	55.00/ 65.00	55.00/ 65.00	65.00/ —	45.00/ —
New Br. Kraft. Env. Cuts	85.00/ 90.00	80.00/ 90.00	70.00/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	65.00/ 75.00	65.00/ 70.00	60.00/ —	60.00/ —
New Br. Kr. Bag Waste Unprntd	75.00/ 80.00	75.00/ 85.00	75.00/ —	60.00/ —
No. 1 Groundwood Shvs.	45.00/ —	35.00/ 42.00	24.00/ —	27.00/ 30.00
White Newsblanks	80.00/ —	65.00/ 75.00	55.00/ —	60.00/ —
No. 1 Soft White Shvs.	75.00/ 80.00	70.00/ 75.00	70.00/ —	— / —
Super Soft Wh. Shvs.	80.00/ 90.00	80.00/ 85.00	80.00/ —	— / —
Hd. Whit. Shvs.	100.00/105.00	110.00/115.00	105.00/ —	100.00/ —
Hd. Wht. Env. Cuts	120.00/125.00	120.00/130.00	105.00/ —	115.00/ —
Col. Tab. Cards	60.00/ 65.00	65.00/ 70.00	65.00/ —	42.50/ —
Manila Tab. Cards, bales	85.00/ 90.00	85.00/ 95.00	85.00/ —	64.00/ —
No. 1 Col. Ledger	35.00/ 40.00	40.00/ 42.50	50.00/ —	35.00/ —
White Ledger	65.00/ 70.00	65.00/ 70.00	65.00/ —	45.00/ —
Mixed Book & Mag.†	26.00/ 27.00	27.00/ 30.00	17.00/ —	— / —
No. 1 Rep'd. Hvy. Books‡	29.00/ 30.00	31.00/ 33.00	30.00/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood. § Deld.

PRICES OF MATERIALS

Aluminum sulphate:		
cml bags, c.l. wks.	cwt.	$1.85 / —
iron-free, c.l. wks.	cwt.	3.55 / —
Casein, acid prec.:		
dom. sh. pt. c.l. (30 mesh)	...	32.00 / —
Arg. ex. dock, duty paid	....	22.00 /23.50
New Zeal., do.	.....	24.00 /25.00
Caustic soda:		
c.l. wks. solid, 76%	cwt.	4.10 / —
flak. & grd. 400-lb. drums, c.l.		4.50 / —
liquid 50% tanks	...	2.80 / —
liquid 70% tanks	...	2.90 / —
China clay:		
dom. air-float, c.l. (Geo. Wks.)	ton	10.00
water-washed, lump, filler,	..ton	11.00
coating	ton	17.60 /40.00
Imported, ex. ship.	..short tons	20.00 /35.00
Chlorine:		
single-unit tanks, works	..cwt.	3.05 / —
multiple unit, 2-5 cars per yr.		3.92 / 5.12
Formaldehyde:		
USP, inh. dms. c.l. wks.	..lbs.	.0675/ —
lcl., E. wks.	lb.	.072 /.0725
Lime:		
hydrated (bulk, c.l.)	tons	20.21 / —
Gum rosin:		
K, M, N, drums, c.l. Savan, cwt.		7.89 / 7.91
Rosin size:		
70%, gum & pale grds., tank cars, south, sh. pt.	cwt.	7.24 / 7.28
Salt cake:		
dom. bulk, 100% anh. wks.	ton	28.00 / —
imp. f.o.b. Saskatchewan	..ton	18.00 / {Cana. funds
Soda ash:		
light, 58%, bags, wks.	cwt.	1.80 / —
bulk	cwt.	1.50 / —
Sodium silicate, 40° Be.:		
tank-cars, wks.	cwt.	1.10 / —
drums, c.l. wks.	cwt.	1.45 / —
(47°) Be. WW.		
tank-cars, wks.	cwt.	1.75 / —
drums, c.l. wks.	cwt.	2.10 / —
Sodium peroxide:		
dms. c.l. E. of Miss.	lb.	.186
l.c.l. (same basis)	lb.	.191 / .196
Soybean, protein:		
chem. isol., wks. c.l. bags	..lb.	.23 / —
Sulphuric acid:		
60° Be. chys. c.l. wks.	..cwt.	2.00 / —
l.c.l. wks.	cwt.	2.45 / —
tank-cars, wks.	ton	18.60 / —
Sulphur:		
crude, c.l. mines, contract,	long ton	26.50 / —
f.o.b. vessels Gulf	do.	28.00 / —
Sulphur dioxide:		
liquid, coml. cyl., wks.	lb.	.10 / .12
multi-unit cars, wks.	lb.	.0535/
Starches:		
corn, multiwalls, c.l. prod. plant:		
pearl	cwt.	6.39 / —
white, dextrins	cwt.	7.55 / 7.80
chlorinated	cwt.	8.15 / —
potato, Idaho, c.l. wks.	..cwt.	6.60 / —
East, fr. all. 50 cents cwt.		
potato, Maine, f.o.b. wks.	cwt.	7.75 / —
Talc:		
c.l. wks., N.Y.	ton	28.00 / —
c.l. wks., N.Y.	ton	27.00 /37.00
Titanium dioxide:		
anstase, c.l. deld. E. bags	Nlb.	.24½/ —
l.c.l. deld.	lb.	.25½/ —
rutile, c.l. deld.	lb.	.26½/ —
l.c.l. deld.	lb.	.27½/ —

what

stainless steels

mean to paper-making...

In headers, like the one above, or in digesters, valves, evaporators, screens — *everywhere* in the paper mill — *stainless* is right at home. Here are good reasons...

Freedom from corrosion — Properly selected stainless goes a long way to eliminate the bugaboos of down-time and replacements caused by corrosion failures.

Continuous cleanliness—The smooth, clean surface of stainless means freedom from buildup. And it protects paper from contamination or discoloration.

High strength—Stainless adds strength and rigidity to processing equipment. It's another reason why stainless equipment stays in service longer.

Abrasion resistance — With its tough, abrasion-resistant surface, stainless outlasts other metals scores of times in erosive or abrasive environments.

It all boils down to the vital fact that *stainless* means greater efficiency, higher profits, in paper-making. Can you afford *not* to use stainless? *Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.*

Write now for your free copy of Crucible's helpful, 20-page booklet, "Making the Most of Stainless Steels in the Pulp and Paper Industry."

Large stainless steel header fabricated by Artisan Metal Products, Inc., Waltham, Mass.

CRUCIBLE first name in special purpose steels

Crucible Steel Company of America

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

OBITUARIES

Alfred Suter, 67, one of the South's leaders in the paper field, died July 14, at Bogalusa, La., following a heart attack. Mr. Suter was vice president and director of the Gaylord Container Corp. division of the Crown Zellerback Corp., and general manager of the Gaylord Mill Division in Bogalusa.

Samuel Simkins, 63 paper box executive, died July 11 in his office at 2d and Cambria Streets, Philadelphia, Pa.

Mr. Simkins founded a number of companies in the paper box business, and was president of the National Paper Box Manufacturing Co., Inc., and the Simkins Paper Box Manufacturing Co. of Philadelphia and the Benner Box, Inc., and the Simco Waste Paper Co., Inc., both of Miami, Fla., and the Miami Paper Board Mills.

Charles W. Babb Sr., 93, died July 10 in Camden, Maine. Mr. Babb was the treasurer of the Knox Woolen Co. in Camden. The firm specializes in the manufacture of paper machine felts.

In spite of his advanced age, Mr. Babb continued to be active with the company until very recently. His service with Knox extends back prior to 1886 when he attained the position of overseer in the weaving department.

Charles Wagenseil, 66, died suddenly on July 6. Prior to his retirement in 1947, he was associated with Hollingsworth & Whitney Co. in their New York sales office for 42 years.

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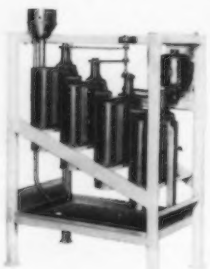
How long are your fibers?



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For details and bulletin, write or call us. FAirfax 3-5501.
The Bauer Bros. Co.
DISC REFINER HEADQUARTERS
1758 Sheridan Ave. • Springfield, Ohio

Figures of the Week

PAPER PRODUCTION RATIO REPORT —American Paper & Pulp Ass'n. Figures

(Production as percent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1956	June 9 101.0	June 16 99.9	June 23 99.1	June 30 98.7r	July 7 64.1
1955	June 11 99.4	June 18 98.7	June 25 98.4	July 2 95.3	July 9 60.4

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1955	93.6	96.6	97.9	98.0	99.3	97.4	85.5	96.2	93.8	101.2	100.6	94.0	94.9
1956	99.6	102.6	102.9	102.3‡	101.2‡	99.6‡							

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1949	1950	1951	1952	1953	1954	1955	1956
Year to Date	81.5	94.1	99.9	91.0	92.6	91.8	95.9	99.8
Year Average	83.7	95.8	98.0	88.6	92.3	91.6	94.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables all the ratios shown are on the basis of a normal 6 and 7 day capacity.

PAPERBOARD OPERATING RATIOS†

COMPARATIVE WEEKLY SUMMARIES

1956	June 9 97	June 16 99	June 23 99	June 30 97	July 7 56
1955	June 11 100	June 18 99	June 25 99	July 2 96	July 9 55

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1955	92	95	96	94	97	97	84	99	97	102	101	92	96
1956	100	100	99	100	99	98							

† *Percents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Ass'n. Figures

ITEM	THIS WEEK ENDING July 7, 1956	LAST WEEK ENDING June 30, 1056	CUMULATIVE TO DATE Jan. 1956 to July 7, 1956
% Activity	56%	97%	97%
	Tons	*Tons*	*Tons*
Total Production	178,617	281,606	7,557,616
Liner	72,297	93,140	2,576,664
Corrugating Material	26,594	42,232	1,183,689
Chip & Filler Board	6,577	6,839	168,017
Total Containerboard	105,468	142,211	3,928,370
Folding	22,878	52,203	1,365,925
Set-Up	3,840	12,472	340,763
Special Food Board	20,478	23,190	633,543
Other	25,953	51,530	1,289,015
Total Boxboard	73,149	139,395	3,629,246
Total Orders	*Tons*	*Tons*	
Received	273,007	257,108	
Unfilled End of Week	512,197	418,186	

Edward H. Tidland, 67, who had been connected with the pulp and paper industry for 47 years, died July 2 at his home in Camas, Wash.

Mr. Tidland started with the Crown-Willamette Paper Co. in 1909, where he later became master mechanic, a position he held for 18 years. He was transferred in 1937 to the Crown-Zellerbach Co., where he served as consulting engineer until his retirement in 1953.

In 1951 Mr. Tidland formed the Tidland Machine Co. with his son Robert and Arthur Williams, to manufacture pneumatic wind and rewind shafts he had invented.

Mr. Tidland had been acting only in an advisory capacity in the company since 1954, due to ill health.

George Thompson Fritz, 63, former treasurer of the Glassine Paper Co., Conshohocken, Pa., died July 10 in Bryn Mawr Hospital. Mr. Fritz, a resident of Newton Square, Pa., retired from the paper firm in 1947.

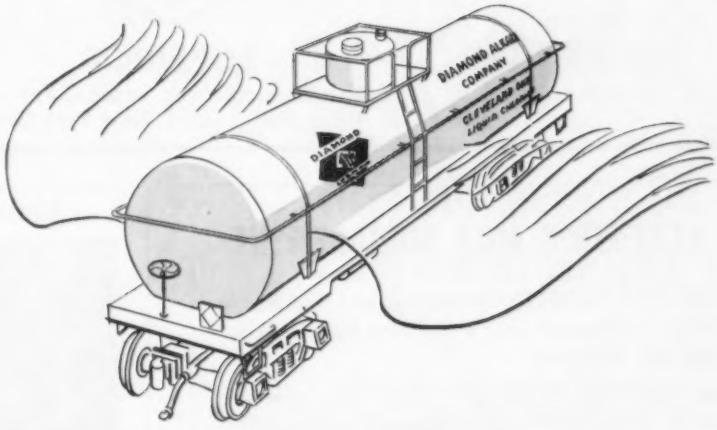
Edith Stroschneider, 66, librarian emerita and editor of Library Notes of The Institute of Paper Chemistry, died on June 29 in the Theda Clark Hospital, Neenah, Wis., after a short illness.

Miss Stroschneider was born in Vienna, Austria, and was educated there through high school. Later she attended Studley Horticultural College, near Birmingham, England, where her studies were interrupted by World War I. She became proficient in seven languages, and this linguistic ability led her eventually into technical library work.

She emigrated to Canada in December 1925, where she became technical librarian of two different paper companies. In May, 1931, she emigrated to the United States where she assumed the duties of Librarian of The Institute of Paper Chemistry. Under her care the Institute library developed into reputedly the most comprehensive library in the world dealing with the sciences and technology of the pulp and paper industry. In addition to performing the normal duties of Librarian, she was responsible for the preparation and publication of a monthly bulletin, "Library Notes," which contains abstracts of technical articles from approximately 300 journals received in the library, as well as abstracts of current U. S. and Canadian patents of interest to the pulp and paper industry. Miss Stroschneider is recognized internationally for her enduring contribution to the collation and integration of the literature of the industry.

CHEMICALS YOU LIVE BY

Diamond Chlorine



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DIAMOND ALKALI SHIPS FROM 5 CONVENIENTLY LOCATED PLANTS

When you want chlorine or technical co-operation in a hurry, call DIAMOND ALKALI.

We are equipped to give you fast deliveries from five conveniently located plants; technical help from one of the world's greatest stores of chlorine know-how.

Call your nearest DIAMOND sales office or plant for regular or emergency shipments.

FREE! CHLORINE SAFE-HANDLING WALL CHART

DIAMOND ALKALI's years of know-how have been compressed into this chlorine safe-handling wall chart. Hang it where workers can read it. Copies free. Ask your DIAMOND sales office or write DIAMOND ALKALI COMPANY, 300 Union Commerce Building, Cleveland 14, Ohio.

DIAMOND ALKALI CHEMICALS

Diamond Chemicals

CHLORINE PLANTS: Edgewood, Md. — Houston, Texas — Muscle Shoals, Ala. Painesville, Ohio — Pine Bluff, Ark.

SALES OFFICES: Cleveland, Cincinnati, Chicago, Houston, Memphis, New York, Philadelphia, Pittsburgh, St. Louis

ENGLISH ECCO CLAYS CLAYS

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UNIFORM SUPERIOR DEPENDABLE

English China Clays Sales Corporation
551 Fifth Avenue, New York City

ATTENTION MILL MANAGEMENT

CENTRAL STATES ENGINEERING is in a position to assist and augment your engineering facilities in the following categories:

Architectural — Structural — Steam and Power-Machine Design—Electrical—Process—Chemical—Plant Layout.

CENTRAL STATES ENGINEERING, INC.
1000 West College Avenue Appleton, Wisconsin

Know Your Chip Yield!

Use a Merrick Weightometer* for Digester Loading — Easy to Install • Accurate • Automatic • Simple to Maintain

* Reg. U.S. Pat. Off.

Write for Pull. 375

MERRICK SCALE MFG. CO.
PASSAIC, N. J.

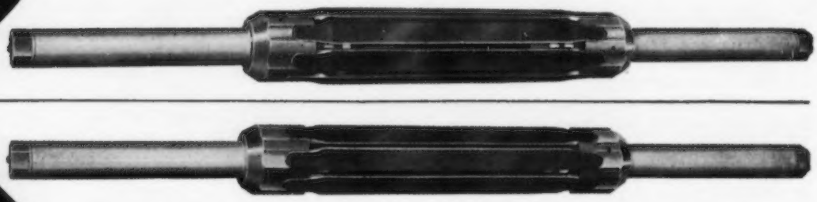
AERO SHAFT *the Pneumatic expanding core shaft*

...features efficiency — offers demonstrated savings in time, labor, material

HERE'S WHY

open for business

compressed air presses 16 smooth steel edges firmly against core for non-damaging, non-slip grip. No more hammers or wedges. Uniform tension makes possible faster roll speeds—eliminates breaks due to core slippage.



out in a jiffy

a release valve deflates tube instantly, ribs lie flat so Aero-Shaft slips out and in easily from used to new core. Double expanding rib section available for web widths over 40".

Descriptive folder and prices will be sent upon request
Please write

PAPER CONVERTING *Machine Company* GREEN BAY, WISCONSIN

Westvaco manufactures a wide range of high quality paper products — from fine printing to rugged converting papers. All of these papers are made from virgin chemical pulps to precise standards of uniformity and quality — Westvaco's guarantee of top performance.

Printing Papers . . . Coated and uncoated letterpress, coated and uncoated offset, and gravure.

Writings . . . Bond, mimeo, duplicating, ledger.

Bristols . . . Index, post card.

Converting Papers . . . Label, tablet, envelope, lining, file folder, tag, tabulating card, coating raw stock.

Bleached Boards . . . Cup, milk bottle, folding boxboard, frozen food container.

Kraft Papers . . . Bag, multiwall sack, envelope, asphalting, impregnating, waxing.

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Market Pulp . . . Bleached and unbleached sulphate.

West Virginia Pulp and Paper Company
230 Park Avenue, New York 17, N. Y.
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DESIGN
by our own engineering staff

INSTALLATION
by our own construction crews

MAINTENANCE
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of Corrosion-Resistant
LININGS and TILE TANKS

Designed and installed to meet the exact chemical and physical requirements of each installation, Stebbins linings and tile tanks are famous for their efficiency and economy.

Wherever you are — whatever your corrosion-resistance problem may be — it will pay you to take advantage of Stebbins' unequalled experience and facilities.

Write for Bulletin A-153

SEMCO
STEBBINS
Engineering and Manufacturing Company, Watertown, N. Y.
STEBBINS ENGINEERING CORP. — 1504 TOWER BLDG., SEATTLE, WASH.
CANADIAN STEBBINS ENGR. & MFG. CO., LTD. — TOWN OF MOUNT ROYAL, MONTREAL 9, CANADA

In-place de-rusting of liquor pre-cooler with Oakite RUSTRIPPER®

raises efficiency 150% ... reports paper mill

When one Western pulp and paper mill found its pre-cooler was reducing the liquor temperature only about 12° instead of twice that much, it realized the unit had become choked with rust.

What to do? The old, hard way meant dismantling and disassembly, it meant losses in downtime. Looking for a faster, easier way, they called in the local Oakite Technical Service Representative.

The Oakite man, familiar with the problem, recommended circulating a solution of Oakite Rustripper. He showed how it could be done without any disassembly, without special equipment. So they gave it a try.

Result? When the pre-cooler was put back into operation it knocked a whole 30° off the liquor temperature!

And of course this increased cooling efficiency meant better production all along the line.

Proving that – although Oakite service is free, it can be mighty valuable. Why not call your local Oakite man now about cleaning problems in your mill? Or write to Oakite Products, Inc., 68 Rector St., New York 6, N.Y.

SPECIALIZED INDUSTRIAL CLEANING
OAKITE
MATERIALS - METHODS - SERVICE
SCIENCE

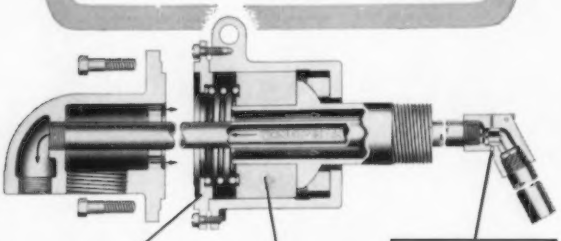
Export Division Cable Address: Oakite

Technical Service Representatives in Principal Cities of U. S. and Canada

Johnson Joint

SELF-SUPPORTED TYPE

with SYPHON ELBOW



ASSEMBLY PLATE — Holds internal parts in position when head is removed.

SELF-SUPPORTING — Needs no external supports of any kind.

SYPHON ELBOW — Permits use of straight pipe for syphon. Can be inserted or withdrawn right through the joint.

WRITE FOR INFORMATION

Bulletin S-2001 has all the facts on this joint-and-elbow combination that supports itself, has no packing, needs no lubrication, outmodes unwieldy syphon pipes. Johnson Joints are also available in pipe-supported and rod-supported types, to suit all operating needs.

The Johnson Corporation

828 Wood St., Three Rivers, Mich.

THERE IS NONE BETTER. .

for a

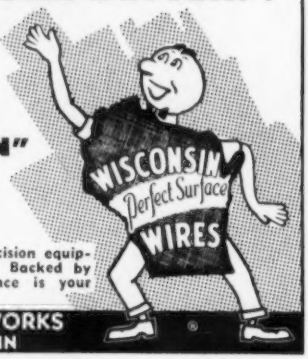
PERFECT SHEET

For **PERFECT PERFORMANCE**

Use **"WISCONSIN"**

Perfect Surface

WIRES



Expertly made with finest precision equipment from extra select wire. Backed by years and years of experience is your assurance of the very best.

WISCONSIN WIRE WORKS

APPLETON, WISCONSIN

PULP

High Grade Unbleached Sulphite

Canadian Newsgrade Groundwood

Spot or Contact Basis

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Restigouche

BLEACHED SULPHITE PULP

for the manufacture of cellophane, rayon and paper products

RESTIGOUCHE COMPANY, Ltd.

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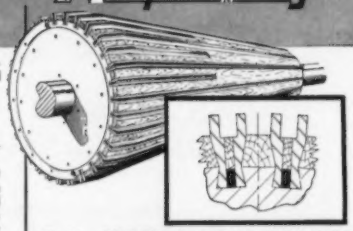
E. D. Jones **Adapta-Plug**



- Strongest plug design yet developed
- Completely bandless
- Easiest plug to strip and fill
- Bars held rigid — cannot move
- No hazard of slot wear or corrosion
- Available in solid plug or sleeve form for old or worn plugs

Ask your Jones representative or write us direct.

E. D. JONES & SONS COMPANY

Pittsfield, Massachusetts

***In Canada:* The Alexander Fleck Ltd., Ottawa**

Builders of Quality Stock Preparation Machinery

Supplying Your Requirements

YOUR PAPER WASTE BECOMES PROFIT

WHEN IT IS RECLAIMED.

DO YOU SUPPORT THE MILLS WHICH

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Help Wanted

POSITIONS OPEN

We can place—Paper and pulp mfr. (foreign); groundwood pulp and paper supt.; supt. Fourdrinier mill using waste paper, bleaching, de-inking, etc.; director of personnel, safety and industrial operations; supt. or asst. supt. for fast running Fourdrinier machine mill.

Chemists and chemical engineers, including 2 technical control supervisors; master mechanics and plant engineers; electrical supt.; mechanical supt.; designer and development engineer for paper converting machy.; time study—industrial engineers; tour bosses (Fourdrinier and Cylinder); machine tenders and back tenders; board salesman.

SEND US YOUR RESUME. Many attractive positions at excellent salaries are open for top-notch men. No fee to be paid unless you accept employment through us. Negotiations are confidential.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington St., LIberty 2-6547, Boston 8, Mass.

J-23

Technical Salesman Wanted

Well established manufacturer of pulp and paper machinery located in northern New York has attractive opening for aggressive salesman. 6 months training. Salary open. Please reply outlining experience and send recent photo. Reply confidential. Our employees know about this ad. Box 56-231, Paper Trade Journal.

J-23

TECHNICAL SERVICE MAN

BOX BOARD, ADHESIVES OR CONVERTING INDUSTRY

Large multi-plant silicate manufacturer seeks Technical Service Man, age to 40 years, with 3 years' experience in the above fields. Degree in Chemistry or Chem. Engineering desirable.

LOCATION: METROPOLITAN NYC AREA

EXCELLENT OPPORTUNITY

Send confidential résumé and salary desired, to:

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J-23

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A personalized Placement Service for "Paper Men" by paper men. Administrative, Technical, Production and Sales positions in the pulp, paper and converting fields. Foreign Connections. Confidential

J-23

PAPER CHEMIST

Expanding New England paper converter seeks chemist experienced in gummed coating, waxed coating or velours. Excellent opportunity for growth. College degree. Age 35-40. Salary $10,000-$12,000 plus benefits. Address Box 56-229 care Paper Trade Journal.

J-23

OPPORTUNITIES FOR ENGINEERS-DRAFTSMEN

Mechanical . . . Civil . . . Electrical . . . Chemical

To join the technical sales and engineering staff of

THE BLACK-CLAWSON COMPANY

Technical personnel, with a knowledge of the paper industry and experience in pulp, paper or converting engineering, are sought by The Black-Clawson Company; one of the world's leading manufacturers of pulp, paper-making and converting machinery.

Six divisions of Black-Clawson serve the world's paper industry from plants in the United States, Canada and Great Britain.

Salary commensurate with background, experience and ability. Complete insurance, profit-sharing, advancement and vacation program.

Please direct replies to:

Mr. R. F. Vokes, Vice-President

THE BLACK-CLAWSON COMPANY

250 PARK AVE. NEW YORK 17, N.Y.

J-23

Help Wanted

PAPER MEN

$5,000 to $25,000

SALES—PRODUCTIONS—TECHNICAL

Top mills, converters, and jobbers from Coast to Coast badly need qualified men at every level. Choice spots open in folding, corrugated, multi-wall bags, transparent and flexible-wall pkg., coarse, fine and paper specialties of all kinds.

I am a paper man myself. If your record of performance entitles you to increased responsibility and greater potential, I can and will help you to attain it. You can contact me in absolute confidence.

GEO. M. SUNDAY & ASSO.
Personnel Consultant to the Paper Industry
6 E. Monroe Chicago AN 3-1970 TF

TECHNICAL MEN

Outstanding opportunity for two qualified technicians to assume positions of responsibility with a long established dyestuff manufacturer.

1—TECHNICAL REPRESENTATIVE
Charged with running full scale mill demonstrations of our products. Travel independently and with sales force. Must be able to adapt laboratory formulas to mill conditions. Mill experience and dyestuff knowledge are essential.

2—LABORATORY TECHNICIAN
Responsible for preparation of preliminary formulas for our customers. Must be familiar with wide range of paper grades and coloring methods. Knowledge of dyes essential. Mill experience an asset.

Both positions require a high degree of initiative and personal responsibility. If you qualify, reply giving personal history, experience, and salary expected. All applications will be held in the strictest confidence. Address replies to the Paper Department.

SANDOZ CHEMICAL WORKS, INC.
61-63 Vandam Street, New York 13, New York
A-6

Paper manufacturer with multi-plan operation has opening for recent engineering graduate in its staff Quality Control organization. It is desirable that this man have quality control or statistical training. More important, however, is that this man be a self-starter with initiative and ability to work with others. Location: Western Massachusetts. Please reply to Personnel Department, Peter J. Schweitzer, Inc., Lee, Massachusetts. J-30

Situations Wanted

EXECUTIVE ENGINEER

Graduate Mechanical Engineer with broad experience in plant and facilities, engineering in pulp and paper converting—eight years chief plant engineer; later production engineer and factory manager. Multi-plant experience. Seeking broader opportunity preferably in mid-west or west coast areas. Age 41. Address Box 56-208, care Paper Trade Journal. JL-30

Situations Wanted

MECHANICAL ENGINEER

With very extensive experience dating from the early twenties in the pulp, paper and board industry. High level positions in Engineering, Power and Production. Very familiar with conventional processes and equipment for pulping, manufacturing and conversion. Well versed in labor relations and personnel problems. Open for connection where this background can be applied to improve operation, modernization or expansion. Address Box 56-228 care Paper Trade Journal.

Man with 36 years experience in the KRAFT PULP & PAPER INDUSTRY is looking for a new connection. Held successfully the position of chief chemist, also superintendent, is familiar with the use of southern and northern soft and hardwoods, also with pulp research, interested in low costs, good quality and production. May also be of assistance if you are building a new plant."

Address Box 56-220 care Paper Trade Journal. J-30

WORKS MANAGER—Production Executive; paper, board and conversion; seeks challenging opportunity in organization needing man exceptionally capable in organization; manufacturing; and labor relations. Employed. Diversified lines. Address Box 56-109 care Paper Trade Journal. J—30

PULP MILL SUPERINTENDENT — Graduate Chemical Engineer with 11 years industrial experience, 10 in Kraft pulp and linerboard production and quality control. Southeastern location preferred. Address Box 56-227 care Paper Trade Journal. J-23

CONVERTING SUPERINTENDENT — Eighteen years experience, Towels, napkins, tissue, waxing, cellophane, printing, sheeting. Highly capable—thoroughly experienced. Address Box 56-233 care Paper Trade Journal. J-23

CHEMIST—Six years experience in quality control and development work in paper board and converting. Desires position in mill, large converter or as technical sales representative. Address Box 56-234 care Paper Trade Journal. J-23

PAPER CHEMIST

B.S., M.S., and two years on Ph.D. at paper school. Eighteen years' experience on a variety of paper, board, felt, and fibrous products, insulating and deadening materials, asphalts and adhesives, for corrugating, saturating, automotive, and other purposes. Seeks responsible position, Midwestern preferred. Box 56-230 Paper Trade Journal.

For Sale

FOR SALE

62" Hamblet Sheeter with backstand and Layboy
72" Hamblet Sheeter with backstand, electric eye and drive.
96" Moore & White Sheeter with Layboy and backstand
44" Mamco Ream Counter
50" Mamco Layboy and counter
40" Cameron Type 24-3A

Many other items

THOMAS W. HALL CO.,
Stamford, Conn. TF

FOR SALE—Slitters and Rewinders; Sheeters; Die Cutters; Waxers & Laminators; Printers; Box Machines. In standard makes, models and sizes. Write for: USED MACHINE LISTING. Address Box 56-153 care Paper Trade Journal. TF

FOR SALE

PRINTING PRESSES

1—42" 4-color Kidder Std Anilner
1—52" Wide 4 Color Manton Oil Ink Press.
1—40" 3 Color Windmoeller & Holscher roll to roll Flexo Press
1—40" 4-color Hudson-Sharp Flexographic, with Variable Sheeter.
1—4 Color Meisel 28" x 28" Rotary, roll to sheets with bronzing unit
1—36" 2-color Manhassett. Roll to Roll with Slitting Attachment.
1—30" 4-color Paper Converting Machine Co.'s Roll to Roll Oil Ink Press.
1—26" 3-color Potdevin Flexo Tailprinter
1—22" 2-color Potdevin Roll to Roll Flexographic Tailprinter.
1—20" Wolverine Flexographic Cub Printer, roll to roll, practically new.

POWER PAPER CUTTERS

19—Seybolds, 56" & 64" Precision; 56" 12Z; 40", 44", 50", 57", 64", 74" 10Z; 50", 56", 64", 84" Daytons; 44" & 74" 20th Century; 34", 44" & 75" Holyokes; 36" 2Y; 3 Oswegos, 44", 57" & 68"; 3 Sheridans, 36", 40" & 65"; 1 3VA Seybold 3 Knife Trimmer; 1—63" S & W Undercut.

CAMACHINES

1—72" Type 10A 36" Rewind.
1—62" Type 40 1AF
1—62" Type 26-7AM
1—52" Type 10-6
1—42", 1—50" and 1—62" Type 6.
1—42" Type 9-5-A
1—42" Type 10-5A, 30" rewind
1—42" & 1—52" Type 24-2A
1—42" Type 40-50 (Roll Doctor)
1—40" Type 40

OTHER SLITTERS

1—84" Waldron Double-Drum, Shear-Cut, 50" Max. Rewind.
1—60" Langston Type "B" 50" rewind
1—48" Langston Duplex Rewind
1—48" Inman.
1—40" Type "A" Langston Shear-Cut
3—40" Model B Fales Shear-Cut Slitters.
1—36" Kidder SL Model.
1—30" Beck Razor Blade Slitter

MISCELLANEOUS MACHINES

2—Hatch Convolute Tube machines complete.
1—Knowlton Tube Winder with re-Cutter.
3—Waldron Gumming machines, 40", 70" and 72" wide.
1—Paper Converting Mach. Co. Model 102 Single Towel Interfolder.
1—Roto Bag Machine Model "C" with electric eye
1—Complete ½ bbl. Coty Tuber
1—Model 111C Potdevin F & S cellophane bag machine
1—Dietz Interfolding Towel Machine
1—40" Waldron Knife Coater.
1—30" Hudson Sharp Waxing Machine. Type AW2
1—52" Waxer and Laminator (beautiful equipment).
1—72" Mayer Equalizer Type Waxing & Laminating Machine
1—75" Potdevin Type Squeeze Roll Waxing Machine
4—Die Presses 1—50" x 22" & 1—44" x 22" Sheridan, 1—38" x 24" Type UA—2—17" x 42" Seybolds.
4—Waldron Embossers. 1—27", 1—32", 1—52" and 1—46" heavy duty. Also 1—48" Hudson Sharp Embosser-tinter.
2—Bunn Tying machines, and 1—Corley-Miller packaging machine.
1—2 oz & 1—½# to 1# Cellophane Bag Machines
2—Paper Converting Machine Co.'s ¼ Fold Napkin Machines, 1—2 web.
2—3 web ¼ fold P.C. Mach. Co.'s Napkin folders.
1—3 web ¼ fold P.C. Machine Co.'s Napkin folder Jr. Model Dispenser type.
1—7 web Paper & Carbon Collator.
1—Webendorfer Carbon Interleaver and Zig-Zag folding machine.
2—81" latest type Paper Converters facial toilet converters
2—Model "A" Junior Lawtomatic Toilet Roll Wrapping Machines
1—48", 55", 67" and 100" Hamblet Single Rotary Sheeters with backstands and layboys.
1—90" Moore & White Single Rotary Sheeter with backstands

GIBBS-BROWER CO., INC.
10 Depot Plaza, White Plains, New York
Telephone—Rockwell 1-1130 J-9

ROSS PAPER MACHINERY CO.

USED PAPER MAKING AND CONVERTING MACHINERY

265 PASSAIC STREET · NEWARK 4, NEW JERSEY · Humboldt 2-2177

Cable Address: "JACKROSS Newark, NJer"

IMMEDIATE DELIVERY FROM AMERICA'S LARGEST INVENTORY OF PAPER MACHINERY

BALERS

1—Buffalo Baling Press—upstroke w/motor.

BEATERS

1—Dilts high speed iron tub. Roll 62" dia. x 54" face with 75 HP motor & controls.
1—E. D. Jones "Bertram" 1500 lbs. Roll 72" x 63". C. I. Tub. Complete with Foxboro Air Cylinder Control and washer. Driven by 3 h.p. gear head motor. Used 2 years.

CALENDER STACKS

1—Black Clawson 82" 5 roll with doctors.
1—Black Clawson 90" 7 roll with 3 spare rolls.
1—Lobdell 124"—9 roll stack—water cooled bearings.
1—Beloit 134" 7 roll, motor operated loading device, forced lube system. Complete with doctors.
1—Beloit 150" 7 roll, motor operated loading device, forced lube system. Complete with doctors.
1—Sandy Hill 84" 7 roll, with doctors.

CHEST AGITATOR DRIVES

3—Phila. 15 h.p.—Ratio 60-1.
1—Phila. 10 h.p.—Ratio 60-1.
1—Phila. 5 h.p.—Ratio 142-1.

CLASSIFINER

1—Dilts Classifiner w/spare discs.

CYLINDER MOULDS

3—136" face x 54" dia.—stainless steel covering.

DRIVES

3—Hamilton Parallel enclosed Drives: 1—60 h.p., 1—100 h.p. and 1—125 h.p.
9—Reeves Open and Enclosed. Sizes 0-D, 1-D, 1E, 3F, 3G, 5E, 6C.

DRYERS

2—42" face x 36" dia.
2—44" face x 36" dia.
2—46" face x 36" dia.
42—46" face x 24" dia. chrome plated, complete with 2-deck frames, gears, bearings, steam joints.
24—46" face x 48" dia. chrome plated, complete with gears, bearings, steam joints.
3—52" face x 48" dia. with gears & bearings.
6—58" face x 36" dia., complete with 2-deck frames, gears, bearings, steam joints.
7—70" face x 36" diameter.
3—76" face x 36" diameter with gears and bearings.
2—84" face x 28" dia.
7—84" face x 36" dia. with gears.
1—86" face x 36" dia. with bearings.
1—90" face x 18" dia. with A-F bearings.
1—104" face x 36" dia.
1—104" face x 48" dia.
1—110" face x 42" dia.
11—113" face x 48" diameter with bearings.
1—116" face x 48" dia.
1—120" face x 23" dia. with rope carrier.
7—120" face x 48" dia. with rope carriers.
1—120" face x 42" dia.
1—124" face x 48" dia.
1—126" face x 48" dia.
13—127" face x 42" dia.
1—130" face x 48" dia.
2—160" face x 28" dia. with rope carriers.
10—160" face x 36" dia.
1—160" face x 42" dia.
42—160" face x 48" dia. complete dryer section including felt dryers, felt rolls, etc.

EXTRACTOR ROLL

1—Downingtown 138" x 24" Extractor Roll with 19" diameter rubber riding roll—all anti friction bearings.

FILTERS

1—Oliver Continuous Filter, Cylinder 8' Diameter x 10' Face, Steel Vat. Complete with repulper and drives with motors. Used 2 Months.

FLAT SCREENS

2—8 plate Bagley & Sewall with scrapers.
2—12 plate Sandy Hill, anti friction bearings.

JORDANS

1—Appleton #2 anti-friction Bearings with 150 HP Westinghouse, Synchronous Motor and Stainless Steel filling.
2—E. D. Jones pony Jordans 3/16" stainless steel filling.
2—E. D. Jones standard Jordans—anti friction bearings.
1—E. D. Jones pony Jordan, ball bearing, with stainless steel filling.
1—Smith & Winchester standard with granite filling.
1—Noble & Wood Bull Dog Jordan. Anti friction bearings with coupling and motor base.
1—Appleton #2—anti friction bearings.

KNIFE GRINDERS

1—132" Rogers with motor. Used 5 months.
1—130" Hanchett belt driven complete with coolant pump, and 2 spare wheels.
1—92" Seybold with motor.

LABORATORY EQUIPMENT

1—Biggs 6' diameter Rotary Digester 100# pressure.

MOTORS

12—125 H.P. Westinghouse synchronous enclosed. Brand new. 440 volt, 720 rpm. forced air ventilation with starters.
1—Westinghouse 300 h.p., 388 r.p.m., 440 v., 3 phase, 60 cycle.

PASTING MACHINE

1—Hudson Sharp 72"—3 roll Paste Applicator with Link Belt Reducer and 25 h.p. motor. (New 1946).

PULP EQUIPMENT

3—2 ft. x 8 ft. type 300 Tyler Niagara Chip Screens.
1—Lannoye Pulper—enclosed drive and 30 h.p. motor.

PULP PRESSES

1—Hydraulic Machine Co. 250 tons 30" x 36" platen, 48" daylight, 30" stroke, 16" ram —upstroke. For baling dry pulp.

PUMPS

44—Centrifugal Pumps open & closed impellers.

REELS

1—Pusey & Jones 162" drum reel.
1—138" English Drum Reel.
1—Waldron 86" automatic Pope Reel with DC motor drive. Operates 1000 fpm. New 1948.

REFINERS

1—24" Downingtown Weiner Refiner. Used 1 day.
1—34" Sutherland Disc Refiner, S.S. discs.
1—New Bauer double disc Model 400, with 2-125 h.p. 2200/3/60 motors.
1—Bauer double disc Model 185C with 2-100 h.p. 2200/3/60 motors.
2—42" Sutherland Refiners—s.s. clad, s.s. discs.

ROLLS—PRESS, COUCH, CALENDER, etc.

32—Press rolls, brass and rubber covered.
14—Couch rolls, brass and rubber covered.
250—Brass and steel carrying rolls.

ROTARY SCREENS

1—#2 Bird—Copper vat.
4—#2A Bird with copper vats.

SHEETERS

1—Cameron 124" quick change double slitter assembly for board sheeters. Complete with 16 pneumatic slitters.
1—Moore & White simplex 114" sheeter with Maxson Layboy, overlapping delivery, 8 roll backstand motor and starter.
1—Hamblet 100" single knife with 3 slitters.
1—Hamblet 75" with layboy and backstands.
2—Hamblet 110" single knife sheeters.
1—Beck 45" sheeter.
1—Beck 48" with jogger.
1—Hamblet 55" with 3 roll backstand.
1—Moore & White 80" w/overlapping layboy.
1—M & W 60" with layboy & 10 roll back stand.

SHREDDERS

2—Mitts & Merrill Air Fluff Paper Shredder. Used 9 months.
1—Mitts & Merrill #17-2A paper shredder.
2—Taylor Stiles Giant Stock Shredders, Style 36.

SLITTERS AND WINDERS

2—Cameron 162" Model 19—Complete with motor drive and roll ejector. 51" rewind.
1—Cameron 194" Model 19. Anti-friction bearings, 2800 f.p.m., equipped with air operated quick change, constant tension and roll ejector.
3—Essex 42" center wind—30" duplex rewind. Anti-friction bearing equipped.
1—Cameron 62"—Model 6.
1—Cameron 62"—Model 26-3A, duplex rewind, complete with motor.
1—Schultz 18"—Automatic with motor.
1—Cameron 62" Model 10-11D. Anti friction bearings, 36" rewind. Water cooled brake.

STOCK PUMPS

1—Shartle 10 x 20 single plunger pump.
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1—Beloit 8 x 10 Triplex.
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SUCTION BOXES

5—192" Aluminum Suction Boxes.
5—Cast aluminum for 190" wire—can be cut down.
2—Brass for 94" wire.
4—Brass for 96" wire.

SUCTION COUCH ROLLS

2—Beloit 25" diameter x 114" face, anti friction bearings, with stands. Direct drive.
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1—Sandusky suction couch 18" diameter x 122" drilled face.
1—Sandusky 28" diameter x 162" drilled face complete Trunnion Roller Bearing.
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1—Sandusky 18" diameter x 116" drilled face.

SUCTION PRESS ROLLS

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SUPERCALENDERS

1—Norwood 30" 5 roll, with motor drive.

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1—B & S 90" single cylinder machine. Complete including pumps, piping, valves, enclosed drive and VS motor drive. Full details on request.

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1—Seybold 72" 20th Century.

VACUUM PUMPS

1—Nash H-5.
1—Nash L-5.

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1—New Valley Iron Works 156" x 36" monel lined inlet and head box.
2—Valley Iron Voith Inlets, adjustable 53" to 86"—Brass lip, stainless steel apron.
1—Valley Iron Works—106".
1—Valley Iron Works 151" stainless steel inlet and head box.
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VORTRAPS

7—Nicholas 4" stainless steel Vortraps—rubber lined heads.

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1—IMPCO 3 stage Washer. Cylinders 84" x 42" with 20" dia. rubber couches, iron end vats, complete with enclosed drives and individual motor drive. Used 1 year.

WET MACHINES

1—Rogers 72" x 48" Wet Machine. Double press sections.

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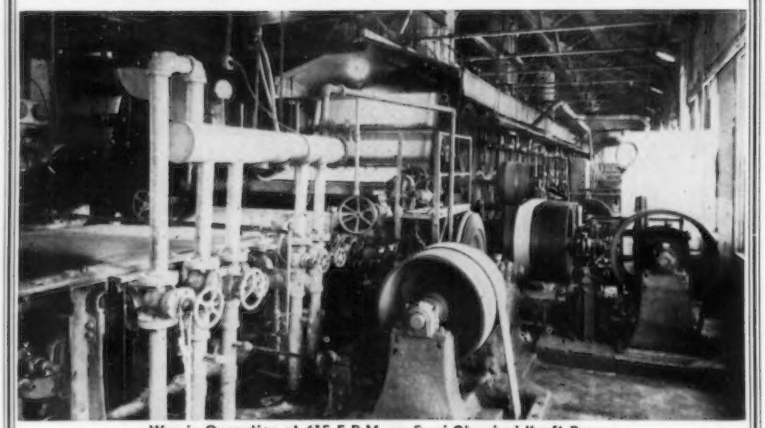
1—10 ft. diameter x 132" face with bearings and Morse Silent Chain Drive.
1—Beloit 12 ft. diameter x 140" face—75 lb. steam pressure.

FOR SALE 86" FOURDRINIER PAPER MACHINE



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The Viking Void Detector has already been acclaimed by pulp and paper mills in many installations.

VIKING

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3 POSITION INDICATOR UNIT

Three standard indicator units: Single Position; Two Position; Three Position. Each equipped with switches to permit testing of each indicating position prior to or during operation. Counter units—electrically actuated, manually reset—record total number of holes in material passing through rollers.

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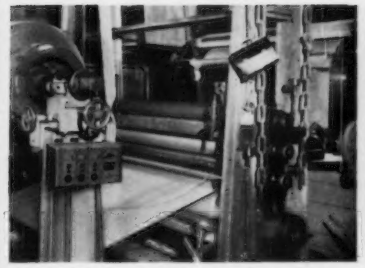

INDICATOR UNIT RECORDS HOLES

Indicator Unit may be located adjacent to Feeler Brush, or at remote point. It records low voltage pulse transmitted by Feeler Brush. Several Indicator Units can be connected in parallel.

FEELER BRUSHES MAKE CONTACT

Feeler Brush, electrically connected to Indicator Unit, makes contact with one side of paper. It picks out paper void, transmits low voltage pulse to Indicator Unit.

AUDIBLE AND/OR VISUAL SIGNALS

Visual signal is incorporated in the Viking Void Detector and provisions are made for the connection of audible alarms and 24-hour recording equipment.

—VIKING LEADS IN—

- PROCESS CONTROL INSTRUMENTATION
- SPECIAL INDICATOR SYSTEMS
- AUTOMATIC PLANT EQUIPMENT
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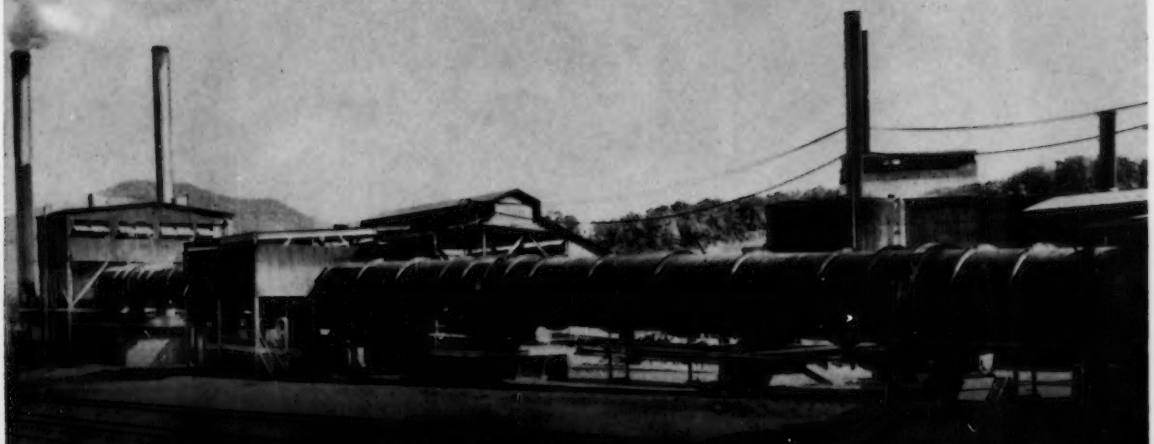
SMIDTH

Rotary Kilns

For Reburning Lime Sludge

We are specialists in the design and manufacture of rotary kilns, coolers and auxiliary equipment for burning lime, lime sludge and for many other purposes. Over 1,000 Smidth rotary kilns have been furnished all over the world.

Shown below is the second Smidth Rotary Kiln for reburning lime sludge at the Canton, North Carolina, plant of the Champion Paper & Fiber Co.



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